

DOCUMENT RESUME

ED 242 964

CE 038 820

AUTHOR Heath, Betty; Camp, William G.
TITLE Microcomputers in Small Business Management.
INSTITUTION Leadership and Training Series No. 64.
Ohio State Univ., Columbus. National Center for
Research in Vocational Education.
SPONS AGENCY Office of Vocational and Adult Education (ED),
Washington, DC.
PUB DATE 84
CONTRACT 300-83-0016
NOTE 106p.
AVAILABLE FROM National Center Publications, National Center for
Research in Vocational Education, 1960 Kenny Road,
Columbus, OH 43210 (LT64--\$6.50).
PUB TYPE Guides - Non-Classroom Use (055)
EDRS PRICE MF01/PC05 Plus Postage.
DESCRIPTORS Adult Education; *Business Administration; *Business
Education; Computer Oriented Programs; *Computer
Software; Evaluation Criteria; Instructional
Materials; Media Selection; *Microcomputers;
Postsecondary Education; School Role; Secondary
Education; *Small Businesses; *Telecommunications;
Vocational Education

ABSTRACT

This guide is designed to assist vocational educators in training individuals at the secondary, postsecondary, and adult levels to use microcomputers in small business management. An overview of the use of microcomputers in the small business setting is provided in the introduction. Included in the next section is a multi-page matrix dealing with software that is available for use in the three top-selling computers to perform small business functions. A review of 49 business software packages from the matrix is also provided. Discussed next are organizational structures at the secondary, postsecondary, and adult levels and methods for training potential and presently employed business personnel to use microcomputers. The section on software packages suggests criteria to guide purchasers in reviewing, evaluating, and selecting software packages based on their individual needs and resources. Concluding the guide is a discussion of telecommunications that examines the implications of networking and telecommunicating for small businesses. Appendixes to the guide include information about business software sources, journals, books, software directories and guides, and business and instructional software evaluation instruments. (MN)

* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *

MICROCOMPUTERS IN SMALL BUSINESS MANAGEMENT

Betty Heath
William G. Camp

Virginia Polytechnic Institute
and State University

The National Center for Research in Vocational Education
The Ohio State University
1960 Kenny Road
Columbus, Ohio 43210

1984

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION
CENTER (ERIC)

This document has been reproduced as
received from the person or organization
making the original copy.
Minor changes have been made to improve
reproduction quality.

- Points of view or opinions stated in this document do not necessarily represent official NEI position or policy.

FUNDING INFORMATION

Project Title: National Center for Research in Vocational Education, Dissemination and Utilization

Contract Number: 300830016

Project Number: 051MH30001

Act Under Which Funds Administered: Education Amendments of 1976, P.L. 94-482

Source of Contract: Office of Vocational and Adult Education
U.S. Department of Education
Washington, D.C. 20202

Contractor: The National Center for Research in Vocational Education
The Ohio State University
1960 Kenny Road
Columbus, Ohio 43210

Executive Director: Robert E. Taylor

Disclaimer: This publication was prepared pursuant to a contract with the Office of Vocational and Adult Education, U.S. Department of Education. Contractors undertaking such projects under government sponsorship are encouraged to express freely their judgment in professional and technical matters. Points of view or opinions do not, therefore, necessarily represent official U.S. Department of Education position or policy.

Discrimination Prohibited: Title VI of the Civil Rights Act of 1964 states: "No person in the United States shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance." Title IX of the Education Amendments of 1972 states: "No person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving federal financial assistance." Therefore, the National Center for Research in Vocational Education Project, like every program or activity receiving financial assistance from the U.S. Department of Education, must be operated in compliance with these laws.

CONTENTS

	Page
FOREWORD	v
EXECUTIVE SUMMARY	vii
SECTION I: INTRODUCTION	1
Purpose	1
Microcomputers in Small Businesses	1
The Role of Vocational Education	3
SECTION II: APPLICATIONS IN SMALL BUSINESSES	5
Business Software Matrix for the Apple, IBM, and TRS-80 Microcomputers	7
Business Software Reviews	17
SECTION III: MICROCOMPUTER TRAINING	35
Organizational Approaches	35
Training Methods	38
SECTION IV: INSTRUCTIONAL SOFTWARE REVIEWS	41
SECTION V: EVALUATION OF SOFTWARE	51
Software Purchase Overview	51
Evaluation Criteria for Business Software	53
Evaluation Criteria for Instructional Software	55
Systematic Software Evaluation	57
SECTION VI: TELECOMMUNICATIONS	59
Requirements	59
Networking Implications	61
Telecommuting	61
APPENDICES	63
Appendix A: Business Software Sources' Addresses	65
Appendix B: Business-Oriented Computer Journals	81
Appendix C: Software Evaluation and Rating Forms	83

	Page
REFERENCES	89
BIBLIOGRAPHY	91

FOREWORD

Microcomputers in Small Business Management will serve as a resource in developing training programs for microcomputer users in small business operations. Software reviews demonstrate the microcomputer's capabilities to perform management tasks and to teach management concepts and skills. Vocational educators and others will benefit from the discussion of organizational structure and training methods to use in designing programs and criteria to use in evaluating and selecting appropriate software packages. Finally, the broader aspect of telecommunications and its application to the small business operation is presented.

The profession is indebted to Dr. Betty Heath and Dr. William G. Camp for their scholarship in preparing this guide. Dr. Heath is Assistant Professor of Marketing Education and Dr. Camp is Assistant Professor of Agricultural Education at Virginia Polytechnic Institute and State University. E. Gene Coulson contributed to the paper by reviewing information about software programs.

Dr. Don Kohns, University of North Dakota; Gregory Glau, Glau Gas Equipment Company; and Dr. James Long and Dr. Ida Halasz of the National Center for Research in Vocational Education contributed to the development of the paper by their critical review of the manuscript. Staff who assisted in the production of this guide included Judy Balogh, Dr. Judith Samuelson, and Dr. Jay Smink. Ruth Nunley typed the manuscript and Janet Ray served as word processor operator. Editorial assistance was provided by Christie Durttschi of the Field Services staff.

Robert E. Taylor
Executive Director
The National Center for Research
in Vocational Education

EXECUTIVE SUMMARY

This guide has been prepared to assist vocational educators in training individuals at the secondary, postsecondary, and adult levels to use microcomputers in small business management. The guide could also be used by business personnel to identify programs to be used as management tools and as a resource to use in training their own employees.

This guide took the form presented due to a decision by the authors to limit the discussion of business applications software to that available for three types of microcomputers. The selection of microcomputers was made based on the availability of a wide variety of software packages for each. No endorsement of any microcomputer hardware or software or telecommunication system is intended.

The search conducted for available software was thorough but not exhaustive. Cost figures given are those reported as of December 1, 1983.

An overview of microcomputers in the small business setting is provided in the introduction. Included in this overview are (1) benefits to the overall business operation and uses of the microcomputer as a management tool; (2) current status of microcomputer sales along with predictions for market growth and future trends in business; and (3) a review of the role of vocational education in training individuals to use the microcomputer. The following sections deal in depth with applications of microcomputers in small businesses; training approaches and methods that can be used by vocational educators; evaluation of business and instructional software; and the broad scope of telecommunications.

To demonstrate the various applications of the microcomputer and wide-range capabilities of software, a multipage matrix is provided for the three top-selling microcomputers—Apple, IBM, and TRS-80. This matrix shows eleven functional areas in the small business operation and selected software packages available to perform tasks within each area. The functional areas covered by the matrix are data base/file management, distribution, financial records, inventory control, marketing and sales, planning, production planning and control, purchasing, specialty programs, miscellaneous, and word processing.

In addition, forty-nine business software packages from the matrix are reviewed with respect to source, cost, hardware equipment, and description. These packages were selected for review because of their popularity and positive reports by users and vendors.

The discussion of organizational structures at the secondary, postsecondary, and adult levels, and methods for training potential and presently employed business personnel to use microcomputers is supported by a review of twenty-seven instructional software packages. These packages are currently available to teach small business management concepts and skills.

The section on software evaluation suggests criteria to guide purchasers in reviewing, evaluating, and selecting software packages based on their individual needs and resources. Suggested

criteria include motivational incentives, reliability, documentation, user friendliness, and reproducibility. This section is especially useful to the novice because of the overwhelming number of software packages on the market today and the varying capabilities of these packages.

Finally, telecommunications is discussed with respect to the requirements for telecommunicating, available commercial databases, and the implications that networking and telecommunicating have for small businesses.

The appendices include information about business software sources, journals, books, software directories and guides; and business and instructional software evaluation instruments.

INTRODUCTION

Purpose

The purpose of this guide is to provide vocational educators with a resource for developing curricula for training individuals to use microcomputers in small businesses. This guide may be used to develop programs at the secondary, postsecondary, and adult levels. In addition, the guide will serve as a resource for business personnel who wish to identify programs to be used as management tools and for those who wish to use the guide as a resource for training their own employees.

Microcomputers in Small Businesses

Benefits

Should a business computerize? The answer is "yes" if a computer (1) helps business personnel to better manage the business; (2) provides information the business needs, and (3) is cost beneficial to the business (Copley 1983). The advent of the microcomputer and user-friendly, inexpensive software has made it possible for small businesses to take advantage of the many benefits a computer offers. Following are several applications of a microcomputer that can benefit small business management.

- A microcomputer stores information and retrieves it upon command and performs mathematical operations and comparisons.
- Software packages are available to eliminate the need for manually performed routine calculations; for example, budgets, payroll, employee records, and sales commissions.
- Manufacturing packages control manufacturing processes, monitor production quality, count production quantities, and report malfunctions (Veit 1981).
- Manuscripts and correspondence are typed and easily corrected through word processing packages, eliminating the need for retyping to correct errors. Also, word processing packages facilitate personalized mass mailings by accessing mailing lists.
- Since approximately 110 pages can be stored on one side of a 5 1/4-inch diskette, information storage space is reduced.
- Inventory control and daily transaction packages provide an accurate, up-to-date account of inventory levels, back orders, stock turnover, and daily, monthly, and year-to-date sales. In addition, the package automatically provides inventory checklists, inventory value reports, receiving reports, reorder reports, purchase orders, and packing slips.

- A microcomputer can tie into networking systems to provide additional services such as making airline reservations, sending and receiving electronic mail, buying and selling items, and performing banking transactions;

Potential Uses

Microcomputers and their software are being used to perform a variety of management tasks in small businesses. Following are six functional areas in business where microcomputer programs can be used and a brief description of the types of programs in these areas. (Software packages are discussed further in the second and fourth chapters of the guide.)

- **File Management:** Programs allow the user to create, retrieve, sort, and modify files of information according to any desired format or category.
- **Word Processing:** Programs allow the user to enter, store, and print text material. The user can quickly correct mistakes, move lines and paragraphs, and reformat without retying.
- **Financial Modeling:** Usually this software will transform the video monitor into a spreadsheet of rows and columns. Programs can be used to create and to perform number crunching and data manipulation activities and calculations using formulas and data entered by the user. Uses include cash flow forecasting and analysis, budget planning and consolidation, sales planning and forecasting, and material and labor requirements planning.
- **Graphical Presentation:** Programs allow the user to create and display graphs and charts of data.
- **Accounting and Cash Management:** Using these programs, activities such as payroll, general ledger, accounts receivable/payable, inventory control, and purchasing can be performed on the microcomputer (Freeland 1983, pp. 58-59).
- **Special Applications:** A variety of programs perform functions designed for specific businesses, for example, job cost estimators for the construction industry, property listings for the real estate industry, cost analysis for the restaurant industry, patient accounts and records for medical offices, livestock and crop production records for agriculture, and point-of-purchase transactions for retailing establishments.

Status

In the last few years, microcomputer sales have grown extensively, with major sales occurring in professional and business markets (*ibid.*, p. 57). In 1980, hardware dollar sales reached \$1.8 billion and sales estimates for 1982 were \$4.9 billion (Friedrich 1983). Daniel Flystra of VisiCorp estimates that there are 2.3 million potential users in the very small business segment and 2.5 million potential users in the self-employed professional market (Freeland 1983, p. 58).

A recent study revealed that of the two hundred microcomputer models manufactured today, those leading the market are Apple, IBM, and TRS-80 ("PC Survey" 1983). Portable computers such as the Kaypro Corona and Compaq seem to be most popular for people who need to trans-

port their computers. It is predicted that in the near future two microcomputers will emerge to set the industry standards and all other microcomputers will need to be compatible with those two.

The supply of software currently on the market can be overwhelming to a potential user. Time, an educated public, and competition to produce quality programs will enable the better software developers and programs to survive. Meanwhile, it is important that users carefully evaluate and select the software most appropriate for their needs.

Outlook

As stated previously, the trend thus far in business has been toward use of the microcomputer for electronic manipulation, storage, and transmission of information. Numerous programs to eliminate the monotonous routine of manual calculation and handling of data are already in use. Predictions for future trends include—

- increasing use of desktop computers by managers, particularly in home office situations—with capabilities for connection with other computers and networking systems,
- videotext systems in wide use by 1990 (Harris 1982);
- electronic catalogs accessible from computer users' homes through terminals or microcomputers with modems (ibid.).
- small businesses ordering supplies and merchandise from manufacturers through their business computers.

Ultimately the microcomputer will become important to all small business managers, whether farm, auto shop, store, home, office, or service—as important perhaps as the telephone, cash register, calculator, or file cabinet, and quite possibly replacing them all.

The Role of Vocational Education

The introduction of the microcomputer to small business situations allows personnel to perform routine tasks and a variety of management functions faster and sometimes more thoroughly than ever before. In the long run, the microcomputer will help small businesses become more competitive with larger businesses. The growing emphasis on computers and the need for technically knowledgeable, competent personnel signals the need for a change in present training programs. In order to accomplish this, jobs will need to be analyzed within the areas of vocational education training to determine emerging technological trends. Once new training needs have been identified, vocational educators will need to design programs and materials to help their students become employable in this rapidly growing technological world.

At the secondary and postsecondary levels, vocational personnel have the responsibility to include computer training in their vocational programs. Training should not be treated as a separate unit or course, but should be incorporated, where appropriate, into the curriculum of each vocational program. In addition, teacher education programs, state departments of education, and local education agencies are accountable for seeing that vocational teachers are prepared to train their students in the use of the computer for creating and handling information in their respective vocational fields.

It is predicted that by the year 2000, two-thirds of the population will earn a living by creating, managing, and controlling information ("Shopper's Guide—Rates and Information" 1983, p. 48). Computers will be the medium through which this is accomplished. Therefore, it is the role of vocational education to see that vocational students are able to meet the demands of this coming information age.

APPLICATIONS IN SMALL BUSINESSES

With two hundred microcomputer models being manufactured, 2,900 software manufacturers, and more than 21,000 software programs commercially available to date, for the purpose of this publication, it was necessary to limit the software to be identified and reviewed. Therefore, discussion will be limited to the three microcomputers for which the largest number of software programs for business applications are available. They are the Apple with approximately 1,044 programs, the IBM with 842; and the TRS-80 with 1,072 (*Software Directory 1983*).

The following matrix shows a breakdown of the small business operation into eleven functional areas and itemizes alternative software packages available to perform tasks within each functional area. Software packages included in the matrix were selected based on popularity, positive reviews, availability, and reputation of software packages and software publishers. Sources are listed also on the matrix beside the package title. (Sources' addresses and phone numbers are found in appendix A.)

To show the capabilities of various software, selected packages—indicated by an asterisk on the matrix—are reviewed at the end of this section. These reviews should provide direction to individuals interested in exploring microcomputer software.

BUSINESS SOFTWARE MATRIX

(For the Apple, IBM, and TRS-80 Microcomputers)

Microcomputers:	Apple	IBM	TRS-80			
Functional Area	Software	Source	Software	Source	Software	Source
DATA BASE/FILE MANAGEMENT						
General	Quick File II & III	Apple Computer	VisiFile	VisiCorp	Data Base Management	Universal Data Research
Supersoft	MicroPro International	Total Recall	PCEZ Business Software	Profile Plus	Radio Shack	Radio Shack
The General Master	Sierra On-Line	VisiDex	VisiCorp	VersaFile	Radio Shack	Radio Shack
DB Master	Stoneware Microcomputer Products	PFS File	Software Publishing	Profile III Plus	Radio Shack	Radio Shack
VisiFile	VisiCorp	Comdata	Comsen	Business Data Base	CMA Microcomputer Division	MicroArchitect
File Fax	IMO Software	Data Base Manager II	Alpha Software	Data Base Manager	Adventures International	Adventures International
PFS File	Software Publishing	Data Writer	Software Options	Maxi Manager	MicroBase	Computrex
Information Master	High Technology Software Products	DataFax	Link Systems	MicroBase	Data Master	High Technology Software Products
Data Star	MicroPro International	EasyData	Information Unlimited Software	Information Master	Information Master	High Technology Software Products
Conquest	United Software of America	Fast Facts	Novell Data Systems	The Data Reporter	The Data Reporter	High Technology Software Products
VisiDex	VisiCorp	FileMaster	Innovative Software	Masterfile	Masterfile	Synergistic Software
DataFax	Link Systems	Filekeeper	NF Systems	IDM X	IDM X	Libra Laboratories
DataDex	Information Unlimited Software	ISAM DataBase	Holland Automation USA	The Datahandler	The Datahandler	Micro Architect
Data Factory	MicroLab	MAIS-SAM	Ensign Software	Member	Member	Miller Microcomputer Services
Data Reporter	Synergistic Software	Product Filing System	Micro Applications Group	MMS Datahandler	MMS Datahandler	Simplified Software Systems
PFS Report	Software Publishing	PFS Report	Microbase Software			Miller Microcomputer Services
List Handler II & File	Silicon Valley Systems	MicroRate	Software Publishing			
D Base II	Ashlon-Tate	FileFax	CompuMax			
MicroBase	CompuMax	VisiForm	IMO Software			
VersaForm	Applied Software Technology	Data Ace	Applied Software Technology			
The Incredible Jack	The Business Solutions	Card File	Computer Software Design			
Data Master	High Technology Software Products	Office Filer	Digital Marketing			
The Tool	High Technology Software Products	Error DRMS	Digital Marketing			
Data Perfect	LJK Enterprises	Power BASE	Erox Microsystems			
IFO	Software Technology for Computers	Data Design	GMS Systems			
The Data Bank	Flowersoft	IDM X	InfoSoft			
InfoStar	MicroPro International	The Datahandler	Micro Architect			
		UltraFile	Miller Microcomputer Services			
			Continental Software			

NOTE: Appendix A for software sources' addresses

*Business software reviews follow this matrix

Microcomputers		APPLE		IBM		TR8-10	
Functional Area	Software	Source	Software	Source	Software	Source	
Telephone Directories	Telephone Diner	Conceptual Instruments	Automated Telephone Director	Microbase Software	Autodialer	Alphanumeric	
	Phone Dex 1	StarSide Engineering	Autodialer	Alphanumeric	Telephone Rotary Index File	FCT	
	Phone Chronicle	Syscon	Telephone Diner	Conceptual Instruments	Dial	Snappware	
	Magic Memory	Atsci	Phone Dex 1	StarSide Engineering			
	Mail Phone List	Computations	Phone Chronicle	Syscon			
	PFS File	Software Publishing	Phone Chronicle	Tecmar			
Mailing Lists			PFS File	Software Publishing			
	Master Mailing List	CMA Microcomputer Division	EZ Mail Label	Data Consulting Associates	Roster	Microcode	
	1st Class Mail	Continental Software	1st Class Mail	Continental Software	Mailing Lists	Radio Shack	
	Address Book	Music Software	EZ Label	Systemics	Business Mailing Lists	Radio Shack	
	Bulkmailer	Salon Software	Label Printing Program	Jack Struck & Associates	The Bench Mark Mail List	Melsoft	
	Mail List Manager	Apple Computer	Mail List	Heiden	Address Directory & Mailing	Douglas Tom	
	Applepost	Apple Computer	Mail Manager	Starware	Labels	Computerware	
	Envy Mailer	Information Unlimited Software	The Bench Mark Mail List	Melsoft	Address Factory	Practical Programs	
			Mail X	Micro Architect	Label Maker	Adventure International	
	Mail Merge	MicroPro International	Mailer	PCE Systems	Mailx Mail	Luzon Computer Systems	
	Magic Address	Peachtree Software	Mailing List	NL Nahring	Mailing Lists	Demi-Software	
	Benchmark Mail List	Minisoft	Mailing List	Alphanumeric	Demi Mail Mailing List	Demi-Software	
	PFS File	Software Publishing	Mailroom II	Software Works	System	Universal Label Printer	
	The Incredible Jack	Business Solutions	Mailtrack	TCI Software	One Disk Mail List Manager	Manhattan Software	
	Mail List 3.0	Artwork Software	Sapana Mail-Track-I	Sapana Micro Software	Two Disk Mail List Manager	Manhattan Software	
	The Complete Mailing Label And Filing System	Avant-Garde Creations	Bulkmailer	Salon Software	Mail X	Micro Architect	
	Mail List Program	Software Technology for Computers	Mail Merge	MicroPro International			
	Mail Phone List	Computations					
	PFS File	Software Publishing					
	FCM	Continental Software					
DISTRIBUTION	The Order Scheduler	High Technology Software Products	The Order Scheduler	High Technology Software Products	Wholesale-Retail Distribution	International Micro Systems	
	MicroDispatch	Comsys	Bride Master	Digital Marketing	Trucking Company Dispatch Office	TRL Consulting	
			OnMail Speed Digit	Tecmar			
			Cab Master	Tecmar			
			Act-Rating Settlements	Comsen			
			MicroDispatch	Comsys			
FINANCIAL RECORDS	Accounts Payable	Compumax	Accounts Payable	MPSI	Accounts Payable	Radio Shack	
	MicroPay		Accounts Payable	Muse Software	MicroPay	Compumax	
	The Computer Programmed Accountant	Continental Software	Accounts Payable	Computer Systems Design	Accounts Receivable		
	BPI System	Apple Computer	Accounts Payable by Peachtree		Accounts Payable General	Micro Architect	
	VersaBusiness	H&E Computronics	Holland Accounts Payable	IBM	Codger and Payroll	Micro Business Systems	
	Accounts Payable	Great Plains Software	TCS Accounts Payable	Holland Automation USA	Accounts Payable	Computer Systems Design	
			VersaBusiness Payables	Rocky Mountain Software System	Accounts Payable	H&E Computronics	
			MicroPay	H&E Computronics	Accounts Payable	TCS Software	
			Accounts Payable by BPI Systems	Compumax	Accounts Payable	Micro Business Software	
				IBM			

BEST COPY AVAILABLE

Microcomputers:		APPLE		IBM		TRW-80	
Functional Area	Software	Source	Software	Source	Software	Source	
Accounts Receivable	MicroRec "The Computer Programmed Accountant" BPI Accounts Receivable VersaBusiness Accounts Receivable Accounts Receivable	Compumax Continental Software Apple Computer H&E Compunetics Great Plains Software Verbatim Software	Accounts Payable Accounts Payable Accounts Receivable Accounts Receivable Accounts Receivable Accounts Receivable Accounts Receivable by BPI Systems "Accounts Receivable by Purchaser" Hailing Accounts Receivable TCS Accounts Receivable VersaBusiness Receivables MicroRec Accounts Receivable	Great Plains Software Software Technology for Computers	Micro Business Software Spectrum Software MPSI American Business Systems Computer Systems Design IBM IBM Holland Automation USA Rocky Mountain Software Systems H&E Compunetics Compumax Great Plains Software	Accounts Receivable MicroRec Accounts Receivable Accounts Receivable	Radio Shack Compumax Micro Business Systems Computer Systems Design H&E Compunetics Micro Architect Micro Business Software TCS Software Holman Data Processing Services
Billing	Billing Billing Client Billing Client Billing Client Billing System	Lifeboat Associates Serendipity Systems Starsoft TCS Software High Technology Software Products	Billing Client Billing Client Billing Client Billing	Lifeboat Associates Cybernetics High Technology Software Products TCS Software	Automatic Billing Program Billing Billing Billing Bill Payer Client Billing Client Billing	ECT Joe Agrelia Computer Shack Computers Plus Micro Data Business Forms Sull High Technology Software Products TCS Software Teaching Assistant	
Cash Flow	Discounted Cash Flow Analysis Cash Flow Sir Isaac's Yield Calculator	Isaac Software Center Process Systems Isaac Software	Doughline Forecast Cash Flow	Alpharistics MicroSystems Software	Doughflow Cash Flow Disbursements Proforma Cash/Budget Cash Flow Analysis	Alpharistics Center Process Systems International Micro Systems Management Systems Software Computech Systems Design	
General Accounting	Personal Accounting Home Accountant Accounting Plus I and II Project Viking Superchief Financial Systems EZ Ledger Accountant	CMA Microcomputer Division Continental Software Software Dimensions Venturcom Data Train Service Highlands Computer Services Intsoft	Accounting Master General Accounting by BPI Systems The Home Accountant Accountant Financier Submon I & II BusinessMaster Plus	ASTEC IBM Continental Software Insoft Financier CompuTech Group BusinessMaster	Big 5 Small Business Small Business Accounting Home Accountant	Cybernetics Howe Software Small Business Systems Group Continental Software	
General Ledger	MicroLedger MaxiLedger "The Computer Programmed Accountant" BPI General Ledger General Ledger	Compumax Compumax Continental Software Apple Computer State of the Art	Bookkeeping General Ledger General Ledger General Ledger General Ledger by Purchaser	Datasmith Spectrum Software MPSI American Business Systems Computer Systems Design IBM	General Ledger MicroLedger MaxiLedger General Ledger General Ledger General Ledger	Radio Shack Compumax Compumax Micro Business Software, Inc Micro Architect PCD Systems	

BEST COPY AVAILABLE

Microcomputers:		APPLE		IBM		TRS-80	
Functional Area	Software	Source	Software	Source	Software	Source	
	Micro General Ledger General Ledger Plus VersaBusiness General Ledger General Ledger	Serendipity Systems Verbatim Software H&E Compultronics Peachtree Software Great Plains Software	General Ledger Holland General Ledger TCS General Ledger VersaBusiness Ledger II MicroLedger MacLedger General Ledger	Micro Business Software Holland Automation USA Rocky Mountain Software Systems H&E Compultronics CompuMax CompuMax Great Plains Software	VersaBusiness General Ledger General Ledger General Ledger	H&E Compultronics H&E Compultronics Instant Software Holman Data Processing Services	
Financial Analysis	Micro DSS Finance Project Viking Plan 80 Financial Analysis/ Management Financial Analysis/ Management Financial Analysis/ Management	Addison-Wesley Publishing Vnetlrcm Business Planning Systems Computerware Ellis Computing Software State of the Art	Project Viking Micro DSS Finance Plan 80 Financial Analysis/ Management Financial Analysis/ Management Financial Analysis/ Management	Venturicom Addison-Wesley Publishing Business Planning Systems Cybernetics Micro Architect State of the Art	Financial Analysis/ Management Financial Analysis/ Management Financial Analysis/ Management Financial Analysis/ Management Modelling Mini Model	American Business Systems Cybernetics Ellis Computing Software Micro Architect Radio Shack Westco Inc	
Amortization	Schedule	Really Software	Compu-Loan Loan Comp Amortization	Benchmark Creations Contract Services Associates Software Laboratories	Loan Comp Amortization Schedule	Contract Services Associates Precision Prototypes Really Software	
Depreciation	Depreciation VisaCount Asset Manager Analysis Life Cycle Analysis and Depreciation Depreciation:ACRS	Basic Business Software Computer Services MicroLab Really Software DynaComp Really Software	The 25th Hour, 25-03 Depreciation Asset Manager Fixed Asset System Depreciation:ACRS	Softkord Basic Business Software MicroLab Bos Programs, Really Software	Depreciation Asset Depreciation Depreciation Depreciation Schedule Depreciation:ACRS	Eigen Systems Creative Solutions International Diversified Computer Services J. Michael Healy Really Software	
Tax Management	Fixed Asset Accounting System Individual Optimizer Tax Manager Personal Report System	Peachtree Software Ardvark Software DynaComp MicroLab Software Publishing	Fixed Asset Accounting System Tax Pro The Tax Manager Micro-Tax	Peachtree Software Contract Services Associates MicroLab Microcomputer Tax Systems	Tax Pro Optimizer	Contract Services Associates DynaComp	
Payroll	VersaPayroll PayWare Payroll Paycheck Payrecord MicroPay BPI Systems Payroll Peachtree 140 Payroll System VersaBusiness Payroll	H&E Compultronics Computer Products CMA Microcomputer Division CMA Microcomputer Division CMA Microcomputer Division CompuMax Apple Computer Brodhead Software Peachtree Software H&E Compultronics Great Plains Software	VersaPayroll Payroll Payroll Payroll Payroll 2.0 Payroll System Multiuser TCS Payroll VersaBusiness Payroll, Payroll by Peachtree SAPANA Payroll Track-i	H&E Compultronics Dallasmith Micro Business Software Solid State Software Computer Systems Design American Business Systems Rocky Mountain Software Systems H&E Compultronics IBM Sapana Micro Software	VersaBusiness Payroll Payroll Disk Payroll MicroPay Payroll System Payroll Payroll Payroll	H&E Compultronics Radio Shack Radio Shack CompuMax Accounting Information Systems American Business Systems Micro Business Software Solid State Software	

Microcomputers		APPLE		IBM		TRS-80	
Functional Area	Software	Source	Software	Source	Software	Source	
	Advanced Payroll Package	Software Technology for Computers	MicroPars Payroll	CompuMAX Great Plains Software ASTEC			
INVENTORY CONTROL	The Store Manager	High Technology Software Products	Inventory Control by BPI Systems	SSR	Order Entry Inventory Control System	Radio Shack	
	EOO	Executive Microcomputer Software	IMS Wholesale Distribution	IBM	Inventory Management	Radio Shack	
	MicroInv	Computer	EOO	International Micro Systems	Inventory Control System	Radio Shack	
	VersaBusiness	H&E Computronics		Executive Microcomputer Software	MicroInv	Computer	
	Inventory Control	High Technology Software Products	Holland Inventory	VersaBusiness Inv	Advanced INV-X	H&E Computronics	
	Inventory Control	Micro Business Software	Inventory Control	Holland Automation USA	Inventory Control	Micro Architect	
	Inventory	SSR	Inventory Control by Peachtree	MPSI	Inventory Control	Micro Architect	
	Inventory Control	BPI Systems	Order Entry/Inventory Control	American Business Systems	Inventory System	Micro Business Software Accounting Information Systems	
	Micro Inventory	Serendipity Systems	VersaBusiness Inventory Inv-X	H&E Computronics	Small Business Tape Inventory	Data Soft of New Hampshire	
	Inventory Control	Software Technology for Computers	MicroInv	Micro Architect	Inv X	Micro Architect	
	Fifo-Lifo	Great Plains Software	Inventory Control	CompuMAX	Accounts Receivable	Microcomputer Sales	
	Stock Control	Hayden Book	Inventory Control	High Technology Software Products	Inventory	American Business Systems	
	Inventory Control	Charles Mann & Associates	Inventory Control	Micro Business Software	Inventory Control	Hayden Book	
			Accounts Receivable	Great Plains Software	Stock Control	Charles Mann & Associates	
			Inventory	Microcomputer Sales	Inventory Control		
			Inventory Control	Software Technology for Computers			
MARKETING AND SALES							
Order Entry	VersaForm	Applied Software Technology	Order Entry/Inventory Control	American Business Systems	Order Entry ICS	Radio Shack	
	The Order Scheduler	High Technology Software Products	EZEEntry	Systems	Order Entry With Inventory Control	Radio Shack	
	Order Entry	CompuMAX	Holland Invicing	Holland Automation USA	Order Entry	CompuMAX	
	Order Entry	Micro Business Software	Invicing	MPSI	Order Entry	Micro Business Software	
	MicroDispatch	Comsis	Order Entry Management System	American Business Systems			
	Invoice File	Phoenix	Order Entry	CompuMAX			
			The Field Companion	Digital Marketing			
			MicroDispatch	Comsis			
Transactions	Point of Sale	TCS Software	Cash Register System	Adventure International	Sales	Blushuds	
			Store Manager	High Technology Software Production	Cash Register System	Adventure International	
			Cash Register System	ICR/PlusSoft	Cash Register 80	Edu-Ware East	
			CashMaster	Versa Computing	Cash Register	ICII FutureSoft	
			Point of Sale	TCS Software	Point of Sale	TCS Software	
			Point of Sale	Versa Computing	Point of Sales Terminal		
			The Invoice Factory	MicroLab	Tracks Sales Commissions and Inventory	Computer Consultants	
					Sales Tax Accountant	Manhattan Software	

6/27/2014 11:11:55

Microcomputers		APPLE		IBM		TRS-80	
Functional Area	Software	Source	Software	Source	Software	Source	
Sales Analysis	Sales Log With Invoicing Sales Analysis Forecast-Sales or Activity	Micro Associates Micro Business Software Northwest Analytical	Hipline Sales Analysis Sales Analysis Forecast-Sales or Activity The Sales Manager	Holland Automation USA Micro Business Software Northwest Analytical Market Power	Sales Analysis Sales Analysis Sales Analysis Sales Log With Invoicing Sales Analysis Sales Analysis Sales Analysis Spades	Radio Shack Cybernetics American Business Systems Micro Associates National Software Marketing Wilson Jones Aparat Institute for Scientific Analysis Micro Business Software	
Promotion/ Prospecting	KYC (Know Your Client) PCAT	Executive Microcomputing Software Arlington Software Systems	KYC (Know Your Client) The Prospector Profiles The Sales Manager	Executive Microcomputing Software Executive Data Systems Whelan Associates Market Power	Executive Microcomputing Software		
PLANNING							
Financial Planning/ Spreadsheets	Multiplan VisiCalc LP Master The Spreadsheet PlannerCalc CalcStar Senior Analyst SuperCalc MasterPlanner Desktop Plan-II MagicCalc Decision Support System/ Finance Money Decisions The Incredible Jack	Mr. BSÖN VisiCorp Applied Operations Research Apple Computer Comshare Target Software MicroPro International Business Solutions Sorcim Comshare Target Software VisiCorp Artsi Ferox Microsystems Eagle Software Publishers Business Solutions	Multiplan VisiCalc LP Master BPT 1-2-3 Desktop Plan Easy Planner EasyCalc Spreadsheets Financial Modeling Master Planner MiniModin SuperCalc Business PAC 100 Business Program PAC 1 Doughnut PlannerCalc Decision Support System/ Finance Money Decisions Business Planning Tool The Financial Planner	MicroSoft VisiCorp Applied Operations Research Starsoft Lotus Development VisiCorp Information Unlimited Software Novell Data Systems American Business Systems Comshare Target Software Winstico Sorcim H&E Computerics Alphametics Alphametics Comshare Target Software	Multiplan VisiCalc LP Master PlannerCalc Budget System Calcstar Desktop Plan SuperCalc Money Decisions MagicCalc	MicroSoft VisiCorp Applied Operations Research Comshare Target Software Carey Moeller and Associates MicroPro International VisiCorp Sorcim Eagle Software Publishers Prichtree Software	
Tax Planning	Tax Decisions Tax Planning Tax Saver Tax Planning Personal Investor Tax Planning Plan 1040 Tax Preparer Tax Mini-Master	Eagle Software Publishers Executive Data Systems MicroLab Paraphysics PBI Professional Software Technology Success Management Consultants Howard Software Services Starsoft	Corporate 1120 Master Tax Program Professional Tax Plan Tax Plan Tax Pro Shortline Tax Planner Tax Decisions Plan 1040	CPAids CPAids Aardvark Software Contract Services Associates Contract Services Associates Shortline Tax Planner Tax Decisions Plan 1040	Tax Decisions Plan 1040 Aardvark Software Tax Estimates Contract Services Associates Syntax CPAids Eagle Software Publishers Success Management Consultants	Eagle Software Publishers Success Management Consultants BAPS Software Micromatic Programming Micromatic Programming Micromatic Programming CPAids Quick Tax	

DISC. COPY REQUESTED

Microcomputers:	APPLE	IBM	TRS-10			
Functional Area	Software	Source	Software	Source	Software	Source
PRODUCTION PLANNING & CONTROL	Bill of Materials	Compumax	Bill of Materials	Compumax	Manufacturing Inventory System	
	Manufacturing Systems	Computerware	PCM	Automated Office Systems	Manufacturing Inventory Control	Radio Shack
	Manufacturing Systems	Serendipity Systems	Haline Bill of Materials	Holland Automation USA	Bill of Materials	Radio Shack
	VisiSchedule	VisiCorp	MicroGantt	Westco	Manufacturing Systems	Compumax
	Job Control System	High Technology Software	Milestone	Digital Marketing	Project Manager	Serendipity Systems
		Products	VisiSchedule	VisiCorp	Production Control	Radio Shack
	Project Management	CMA Microcomputer Division	Project Manager	Datamendians	Budget Project Monitoring System	Mayday Software
	Apple Project Manager (APM)	Apple Computer			Manufacturing Job Costing	Southfork Software
	Critical Path Scheduling	Utilities Engineering			Manufacturing Labor Reporting Performance	EITech Associates
					Manufacturing Shop Order Control	EITech Associates

PURCHASING

(Also see						
Inventory	Purchase Order	SSR	Purchase Order	SSR	Purchase Order	Micro Data Business Forms
Control)	Purchase Order	Star Computer Systems	Purchase Order	Star Computer Systems	Purchase Order	Time Management Software
						Computers Plus
						Management Systems Software

**SPECIALTY
PROGRAMS**

Agriculture	AG Disk Financial Management	Harris Technology Systems	Working Record	Red Wing Business Systems	'Computerized Farm Records	Micro LearningWare
	Working Record	Red Wing Business Systems	Dairy Herd	Farm Management Group of Mississippi	Agricultural	Agri-Computer Services
	Farm Plan	Farmplan Computer Systems	Farming	Farm Management Group of Mississippi	Working Record	Red Wing Business Systems
	Agricultural Farming				Chemical Dealer	Summerville Enterprises
	Electronic Spreadsheet				Dairy Herd	Farm Management Group of Mississippi
	FarmCalc					Marathon Microsystems
	Financial					American Small Business Computers
	Farm Fitter					Computer Systems
	Crop Management					Farm Management Group of Mississippi
	Pig Management					Marathon Microsystems
Trades	Farming	Harris Technology Systems	Dairyherd Management	Countyside Data	Dairy Farming	Galactic Software
	Farm Records	Micro LearningWare		Countyside Data	Farming	
	Farming	Relational Systems Int'l		Countyside Data	Farming	
	Farming	Scorpion Systems		Countyside Data	Farming	
	The Hog Analyzer	CE Software		Countyside Data	Farming	
	AG Marketer	Countyside Data Inc			Homestead Farm Management	
					Feed Mills	

Microcomputers		APPLE		IBM		TRS-80	
Functional Area	Software	Source	Software	Source	Software	Source	
Job Costing	Kleinhammer	Electricty	Spectrum Software	Construction Cost/Profit Analysis			
ACT	Charles Mann & Associates	Dealers	Johnson Associates			Really Software	
Job Costing	Micro Mikes	Job Costis	Perchtree Software				
Job Costing	Script Data Systems	Autoshop	Dair-Data Data Processing Service				
Job Costing	Serenity Systems						
Circuit Analysis Program	CMA Microcomputer Division	Cost Estimator	High Technology Software Products				
Contractor	Utilities Engineering						
Electricity	Spectrum Software	Construction Cost Profit Analysis					
Electricity	Zigurat Software						
Hi-Rise Architectural Design	Avant-Garde Creations						
Construction Accounting							
Systems	CMA Microcomputer Division						
Cost Estimator	High Technology Software Products						
Construction Cost/Profit Analysis							
Air Conditioning	Really Software						
Calculations	Utilities Engineering						
Furnace Design	Utilities Engineering						
Lighting Calculations	Utilities Engineering						
Pipe Design for Gravity Flow	Utilities Engineering						
Wood Joist Rafter Design	Utilities Engineering						
Compuquote	Peripherals Visions						
Health	Audent's Dental Office Date	Medical Software Consortium	Audent's Dental Office Date	Medical Software Consortium	Audent's Dental Office Date	Medical Software Consortium	
	Doctor's Office Companion	High Technology Software Products	Medical Invoice Generator for Public Aid	Sapient Micro Software	Medical Office System	Radio Shack	
	Easylab	Synapse Video	Medical Data Management Patient Files	Solid State Software	Laboratory Test Pricing	Downeast Digital	
	Ambulance Dispatching	Spectrum Software	DateBook II	Professional Medical Software	Quality Controls	Downeast Digital	
			Medical Office Management Package	Digital Marketing	Laboratory	Hexagon Systems	
			Medical Systems	Charles Mann & Associates	Doctor's Office	High Technology Software Products	
			Medical Systems	Johnson Associates	Medical Systems	Micro Architect	
			AMOS	Micro Architect	Ambulance Dispatching	Joe Aqella	
			Ambulance Dispatching	Computer Software International			
			IMS Dental Office Management System	Spectrum Software			
				International Micro Systems			
Home Economics	Nutri-Calc	PCD Systems	Diet	Metamorphics	Nutrition		
	Nutrition	Pillsbury	Dietary Analysis	SimSoft Associates	Restaurant		
	The Menu II	C&H Video	Restaurant	Computer Systems Design	Restaurant		
	Micro Cookbook	Virtual Combinations	Personal Computer Home Budget Program	...			
	Home Accounting	Continental Software	Home Accountant	IBM			
	Nutritrac	WIMS Computer Consulting	AACS Restaurant Accounting Programs	Continental Software			
	Nutritionist	N-Squared Computing	Restaurant Inventory Control and Cost Analyses	Advanced Analytical Computer Systems			
				Advanced Analytical Computer Systems			

Microcomputers		APPLE		IBM		TR-80	
Functional Area	Software	Source	Software	Source	Software	Source	
Marketing	Real Estate Analyzer	Howard Software Services	Real Estate Property	Tomar Productions	Rent Estate Series	Radio Shack	
	Property Management	Continental Software	Commercial Property	Tomar Productions	Apartment Management	Eminent Software Library	
	Real Estate Models for the Eighties	Commercial Software Systems	Commercial Property Management System	Solid State Software	Real Estate Agent	American Business Systems	
	Real Estate Property Management	Tomar Productions	Real Estate System	American Business Systems	The ProTrade System	Micro Data Business Forms	
	OrionMaster (Auto. homeowners & renters commercial, truck, and commercial liability)	Orion Business Systems	Real Estate Analyzer	Howard Software Services	Electronic Broker	Nevis, Microsystems	
	Stock Tracker	H&H Trading	Property Listings	Realty Software	Standard & Poor's Stockpac	Radio Shack	
	The Stock Portfolio System	Smith Micro Software	Comparables	OmniStar International	Banking Programs	Radio Shack	
	Analysis and Prices	PBC Data Systems	Independent Agency	The Producer	Savings & Loan	GB Lenz	
	Compound Interest	Data Systems	Risk	Metamorphics	Beverage Distributors	Data Automation Service Int'l	
	The Bar Wind	Advanced Business Technology	LP Gas Distributors	Metamorphics	LP Gas Distributors	Microcon Digital Systems	
	Point of Sale	Veris Computing	Hotel System	Johnson Associates	Station Management	Johnson Associates	
	Retail Manager	Advanced Business Technology	Stock Charting	Automated Management	Diamond Head Software	Institute for Scientific Analysis	
	Automobile Dealer	C&O Software	Personal Investor	PBL	PBL		
			Point of Sale	JCS Software			
			Auto Clerk	MPSI			
			Microbase Ad Agency System	Microbase Software			
			Auto Parts Inventory	Rainbow Enterprises			
			Insure	The Software Terminal			
			Key Spread (Banking)	Analytic Systems			

MISCELLANEOUS

Time Management	Appointment Calendar	CMA Microcomputer Division	Agenda	TCI Software	Time Accounting	Radio Shack
	Disk Calendar II	Telephone Software	Microminder	Alphematics	Time Manager	Radio Shack
		Connection	Personal Secretary	Computer Aided Design	Daily Appointment Calendar	International Computer Product
	Time Manager	Image Computer Production	The 25th Hour Time	Softrend		
	The Organizer	Conceptual Instruments	Scheduler/Organizer	IBM		
	Appointments	Agent	Time Manager	Conceptual Instruments		
Graphics/Plotting	VisiDex	VisiCorp	Disk Organizer	Terland Systems		
			Shoebox	Information Solutions		
			Time Scheduler	VisiCorp		
	Graph Power	Foxor Microsystems	PDC	Peachtree Software	Business Graphics Analysis	Radio Shack
	Apple Plot	Apple Computer	1-2-3...	Lotus Development	CopyArt II	Simulek Computer Products
	VisiTrend Plot	VisiCorp	GraphWriter	Graphic Communications		
	Apple II & III Business Graphics	Apple Computer	Graph Power	Foxor Microsystems	Graphics	Microcode
	ANA I	Galaxy	Chart Pro	Micro Control Systems	80 Graphics	Micro Lab
	BFS Graph	Software Publishing	Chart Master	Decision Resources	Graphics	Quality Software
	Friend Speller	Software Resources	Chairman	Graphic Software	Graphics	System Design Lab Software
	Executive Briefing System (EBS)	Professional Software Technology	BFS Business Graphics	Business and Professional Software		
	Money Decisions Vol I & II	Eagle Software Publishers	Graph N Calc	Desktop Computer Software		
	Chart Master	Decision Resources	GraphPad	Teleaid Computer Applications		
	Graph Magic	International Software Marketing	Business Graphics System	Peachtree Software		
			Graph Magic	International Software Marketing		
			Enographics	Electronics Research		
			VisiTrend Plot	VisiCorp		

Microcomputers		APPLE		IBM		TR&BO	
Functional Area	Software	Source	Software	Source	Software	Source	
Check Systems/ Writing	Disk-O-Check	High Technology Software Products	Check Writer/Check Book	Computerized Management Systems	Business Checkbook	BIG Data	
	Print Check Accounting	CMA Microcomputer Division	Check Writer/Check Book	Spectrum Software	Business Checkwriter	Radio Shack	
	Check Writer	SouthWest EdPsych Services			Checkbook Accountant	TBL Consulting	
	Money Street	Computer Tax Service			Maxi CRAS	Adventure International	
General Business	Practical Basic Programs	High Technology Software Products	Interactive Business System	Marc Fogg Software	Desk Topper-Pac I	CMA Microcomputer Division	
	Professional Office Management	CMA Microcomputer Division	Business Master	Masterworks Software	Interactive Business Systems	Marc Fogg Software	
	The Financial Partner	Denver Software	The Business Manager	Business Manager			
	Some Common Basic Programs	High Technology Software Products					
	Business Master	Masterworks Software					
WORD PROCESSING							
Word Handler II Apple Writer II and III Wordstar Version 3.00 Practext (Magic Wand) PieWriter ScreenWriter Applewriter III Bankstent Writer Format II Magic Window II Sensible Speller The Executive Speller Spellerstar Project Viking The Incredible Jack SuperText PowerText EasyText Write Away Dowriter Letter Perfect Super Text Home-Office Super Text Professional - 140 BPI The Dictionary The Executive Secretary Zardax	Silicon Valley Systems	EasyWriter	IBM	ScriptIt	Radio Shack		
	Apple Computer	EasyWriter II	Information Unlimited Software	Super ScriptIt	Radio Shack		
	MicroPro International	Perfect Writer	Perfect Software	Text Processor	Creative Computing Software		
	Peachtree Software	The Final Word	Mark of the Unicorn	Pie Writer	Hayden Book		
	Hayden Software	Versa Text Word Processing and Database System	EasyWriter	EasyWriter	Soft Sector Marketing		
	Sierra On-Line	WordStar	TeamSoft	Final Word	Charles Mann & Associates		
	Apple Computer	SuperWriter	MicroPro International	WORDIT	Mark of the Unicorn		
	Broderbund Software	Practext	Socim	Via-Word	Micro Architect		
	Kensington Microwave	PowerText	Peachtree Software	LazyWriter	Quality Software		
	Artsci	Vikswriter	Beaman Porter	EasyText	AlphaBit Communications		
	Sensible Software	Spelling Proofreader	Lifetree Software	Desktopper-Pac I	Artwork Software		
	Soft Sys	EasySpeller	Practext Software	Elvirc Webster Dictionary	CMA Microcomputer Division		
	MicroPro International	SpellStar	Information Unlimited Software	Demisat Word Processor	Comucopia Software		
	Venturcom	Project Viking	MicroPro International	Forth Word	Demi Software		
	Business Solutions	Screen Writer	Venturcom	Newscript	Miller Microcomputer Services		
	Muse Software	Word X	Micro Architect	Docute	Protoll		
	Beaman Porter	Forth Word	Micro Architect	Kwikrite	Simplified Software Systems		
	Artwork Software	Word Plus PC	Miller Microcomputer Services		Simplified Software Systems		
	Avant-Garde Creations	The Executive Secretary	Professional Software Technology				
	CMA Microcomputer Division	Pinwriter	Soft Sys				
	LJK Enterprises	PFS Write	Hayden Software				
	Muse Software		Software Publishing				
	Sierra-On-Line Systems						
	Soft Sys						
	Action Research Northwest						

BEST COPY AVAILABLE

BUSINESS SOFTWARE REVIEWS

The software reviews appear in alphabetical order by title. Source, cost, hardware requirement, and description are included. An index is provided.

Business Software Reviews Index

Title	Page
Accounts Payable (Apple)	18
Accounts Payable (IBM)	18
Accounts Payable (TRS-80)	19
Accounts Receivable (Apple)	19
Accounts Receivable (IBM)	19
Accounts Receivable (TRS-80)	19
AMOS	20
AppleWriter II	20
AutoShop	20
Business Graphics Analysis Pak	21
Client Billing System	21
Computerized Farm Records	21
Discounted Cash Flow Analysis	22
EZEntry	22
General Ledger (Apple)	22
General Ledger (IBM)	23
General Ledger (TRS-80)	23
InfoTory	23
Insure	24
Inventory Control (Apple, IBM)	24
Inventory Control (TRS-80)	24
KYC (Know Your Client)	25
Lazy Writer	25
Money Decisions, Vol. I; Vol. II	25
Multiplan	25
Order Entry/ICS	26
The Order Scheduler	26
P.A.C.E. (Prompt, Accurate Cost Estimator)	26
Payroll (Apple)	27
Payroll (TRS-80)	27
PFS:File	27
PFS:Graph	28
Property Listings Comparables	28
The Prospector	29
Restaurant Inventory Control and Cost Analysis Program	29
Sales Analysis (Apple)	29
Sales Analysis (TRS-80)	29
Scriptsit	30
The Store Manager	30
Tax Decisions	30
Time Manager (Apple)	31

Title	Page
Time Manager (IBM)	31
Time Manager (TRS-80)	31
VersaPayroll	32
VisiCalc	32
VisiDex	32
VisiSchedule	33
VisiTrend/Plot	33
WordStar	33

NOTE: In all cases, the disk operating system (DOS) required is the standard machine DOS, that is, DOS 3.3 or 3.2.1 for Apple, TRS DOS for TRS-80, and PC DOS 1.1 or 2.0 for IBM, unless specified otherwise.

Title: Accounts Payable

Source: Continental Software

Cost: \$250 (as of 12/1/83)

Hardware Requirements: Apple II, II+, IIe; 48K; 2 disk drives; printer

Description: Continental's Accounts Payable is one of a set of related accounting programs, each sold under the title The Computer Programmed Accountant (CPA). Although this package is fully capable of stand-alone use, in the set each package can interact with all the others in sharing data. This package accepts invoice data from the user and maintains all the standard files: vendor lists, cash requirements, discounts, payment due dates, aging data; a list of open invoices; and a transaction register. The user directs the program to pay selected invoices; or to pay specified categories of invoices. The computer then prints required checks and enters the data in the check register.

Title: Accounts Payable

Source: Peachtree Software

Cost: \$595 (as of 12/1/83)

Hardware Requirements: IBM PC, 2 disk drives, printer

Description: As a part of a larger, integrated accounting system for the IBM PC, Peachtree's Accounts Payable provides the small business manager with many valuable tools. Included are vendor records; payment due dates; discount amounts and dates, and cash requirements. The package contains fifteen separate programs that accept input, create further data, prepare reports, and instruct the user as to what further information is needed. Available reports include cash requirements, open invoices; transaction register; aging report; and a vendor file. Once the user directs the computer to pay an invoice, it prints the check and updates the internal check register. The system is menu driven for simplicity of operation.

Title: Accounts Payable

Source: Radio Shack

Cost: \$499 for Model II and 12; \$599 for Model 16 (as of 12/1/83)

Hardware Requirements: TRS-80 Model II, 12, or 16; 2 disk drives or hard disk, 15" tractor printer

Description: This program is part of a complete accounting package, all of which can interact with mutually useable files. This is an accrual system that provides: vendor file, alphabetical vendor list, accounts payable transaction register, aging report, cash requirements, precheck writing accounts, check register, general ledger distribution, and manufacturer analysis.

Title: Accounts Receivable

Source: Continental Software

Cost: \$250 (as of 12/1/83)

Hardware Requirements: Apple II, II+, III, 48K, 2 disk drives, printer

Description: This program is one component of the Computer Programmed Accountant (CPA) by Continental. It can be used as a stand-alone system. Accounts Receivable allows for printing invoices or statement billing on purchases. The vendor sells preprinted invoice forms or the user can use regular computer paper. Reports include current receivables, aging receivables, monthly sales, year-to-date sales, customer lists, mailing labels, and general ledger posting reports. The detailed aging report includes customer phone number for quick follow-up.

Title: Accounts Receivable

Source: Peachtree Software

Cost: \$595 (as of 12/1/83)

Hardware Requirements: IBM PC, 64K, 2 disk drives, printer

Description: This program is designed to interface with the General Ledger System by Peachtree, however, either package can operate alone. This is a complete invoicing and statement-generating package that is fully menu driven for simplicity of use. Customer records including credit information and payment records are maintained automatically. The program provides current accounts receivable as well as three periods of aged receivables. It can also handle customer credit limits, overpayments, prepayments, credits to accounts, and multiple transactions to open accounts.

Title: Accounts Receivable

Source: Radio Shack

Cost: \$499 for Models II and 12; \$599 for Model III (as of 12/1/83)

Hardware Requirements: TRS-80 Models II and 12 require 2 disk drives or hard disk, 15" tractor printer

Description: Part of a fully integrated accounting system; Accounts Receivable allows for open item or balance forward operation that provides for invoicing either at sale or statement billing; current receivables as well as aging reports, with or without details; customer account details such as payment record, discounts, balances, and amount due at any given time; and customer sales tax variations based on tax codes; figuring of commissions, and discounts in computing net amounts due.

Title: AMOS

Source: Computer Software International

Cost: \$1,850 (as of 12/1/83)

Hardware Requirements: IBM PC; 64K; 2 disk drives, printer

Description: AMOS is a medical database management system that can be used to serve only one doctor or a multidocitor office, or can be used on a networking basis to serve multiple offices. It features medical data and history collection using the national AMA format that lets doctors collect directly from Medicare, Medicaid, Blue Cross/Blue Shield, and EMC. Charges can be specified to patient accounts, statements are generated, mailing labels are printed, and payments are recorded and credited. Appointment scheduling is maintained and the doctor's free time is indicated.

Title: AppleWriter II

Source: Apple Computer

Cost: \$195 (as of 12/1/83)

Hardware Requirements: Apple II, II+, IIe with 80-column card; 48K; printer

Description: This is a much improved version of Apple's original AppleWriter. It is a good word processing system for the money and quite adequate for most home and small business applications. It provides a tutorial section in the Apple Jix, which leads the beginner through simple commands. This is not a menu-driven system, so the user must memorize a large number of CTRL keys and special commands. It does, however, have a very complete help subprogram that can be viewed at any time without losing any text in the computer. One advantage of this program is its efficiency. Relatively little memory space is occupied by AppleWriter II at any time, thus allowing for much larger text files than many other word processing packages.

Title: Autoshop

Source: Dale-Data Data Processing Service

Cost: \$865 & up (as of 12/1/83)

Hardware Requirements: IBM PC, 64K, 2 disk drives, printer

Description: This package solves day-to-day problems associated with the management of an auto repair shop: maintains customer repair orders, customer order invoicing, supplier lists, and mailing lists; and provides profit reports by single jobs or by time frame. It includes a payroll system for employees using any one of four methods to figure gross pay.

Title: Business Graphics Analysis Pak

Source: Radio Shack

Cost: \$174.95 (as of 12/1/83)

Hardware Requirements: TRS-80 Model III, 48K, disk drive, graphics printer or multipen plotter

Description: The user supplies the type of graphic required, the number of elements, labels, and item values. The program does the rest. Disk files, such as VisiCalc, can be used to provide the data. TRS-80's excellent color graphic printer produces high-quality reproductions of the graphics as seen on the screen.

Title: Client Billing System

Source: High Technology Software Products

Cost: \$100 (as of 12/1/83)

Hardware Requirements: Apple II, II+, IIe, 48K, 132 column printer, 1 or 2 disk drives

Description: Client Billing System keeps track of customer/client transactions using either an hourly or a fixed rate charge. The system will accommodate up to five hundred different rates. Menu driven, the package handles job cost analysis, payments, and charges.

Title: Computerized Farm Records

Source: Micro LearningWare

Cost: \$99 (as of 12/1/83)

Hardware Requirements: Apple II, II+, IIe, 48K, TRS-80, 32K, disk drive, printer

Description: This package provides a very simple general ledger system, tailored specifically for farm operation. It accepts expenses, receipts, and enterprise records. Transactions can be taken directly from the checkbook and deposit slips. It provides reports showing cash receipts and disbursements on a month-to-date and a year-to-date basis either by enterprise or in total. Also available are capital purchase status reports, financial statements, and an income statement. Noncash transactions can be accommodated. The program is fully menu driven. While more expensive

packages provide more sophisticated capabilities; this package performs many functions for a relatively low price.

Title: Discounted Cash Flow Analysis

Source: Isaac Software

Cost: \$35 (as of 12/1/83)

Hardware Requirements: Apple II, II+, IIe, 48K; disk drive; printer

Description: This package discounts or accumulates cash flow at specified interest rates or solves for yield. Cash flow data can be entered for any day in a year from 1950 to 2049. It includes extensive editing and data handling capabilities. Files can be updated or merged as needed.

Title: EZEntry

Source: Systemics

Cost: \$99.95 (as of 12/1/83)

Hardware Requirements: IBM PC, 64K, 2 disk drives, printer

Description: EZEntry is an order-entry program that stores up to two hundred product codes and can handle up to five hundred orders per storage diskette. It accepts order entries and computes costs, tax, discounts, and wholesale and retail price. It also prints customized invoices. For the user with some computer experience, the files can be interfaced with accounting software; however, this package does not offer that capability.

Title: General Ledger

Source: BPI Systems

Cost: \$395 (as of 12/1/83)

Hardware Requirements: Apple II, II+, IIe, 48K; 2 disk drives, printer

Description: General Ledger by BPI is well respected in the industry. It can be used as a stand-alone system or it can function as a part of the integrated general accounting system by BPI. The very thorough documentation is designed for the nonexpert and a simulated business is set up on diskette to illustrate the program for the beginner. It works from a general journal that interfaces with all other subsidiary ledgers in the system. This system allows for the creation of up to four hundred general ledger accounts, one hundred payroll ledgers, five hundred accounts receivable ledgers, two hundred accounts payable ledgers, two hundred cash disbursements records, and an invoice register. The BPI system includes accounting functions that must be purchased separately in many other systems.

Title: General Ledger

Source: Peachtree Software

Cost: \$595 (as of 12/1/83)

Hardware Requirements: IBM PC; 2 disk drives, 64K, IBM PC DOS and disk BASIC extension; printer

Description: IBM considers this package to be the "heart" of its total accounting system. It can stand alone or interact with an integrated series of general accounting programs by the same vendor. It maintains a detailed account of all financial transactions and produces balance sheets and income statements. A transaction register is generated by account number, source, entry session, or department, at the user's discretion. It allows for comparison of prior-year records to budget amounts for the current year. Repeating entries are made automatically. The system contains a depreciation-schedule-generating function.

Title: General Ledger

Source: Radio Shack

Cost: \$499 for Model II and 12; \$599 for Model 16 (as of 12/1/83)

Hardware Requirements: TRS-80 Model II, 12, or 16; 2 disk drives or hard drive, 15" printer with tractor drive

Description: This program is designed to stand alone or to interact with the complete accounting system marketed by Radio Shack. It allows for establishment of accounts payable, accounts receivable, and payroll ledgers. The system generates the following reports: income statement; balance sheet, supporting schedules; accounts chart, financial statements; a register of general ledger transactions, trial balance work sheets, and cash flow statements.

Title: Infotory

Source: SSR

Cost: \$425 for IBM; \$295 for Apple (versions are not interchangeable) (as of 12/1/83)

Hardware Requirements: Apple II, II+, III; 48K; IBM PC, 64K, 2 disk drives, printer

Description: Infotory is a complete inventory management system on Apple with DOS 3.3 and can maintain about 1,200 inventory items; DOS 3.2.1 can handle about 1,000 different items. On IBM, single-sided drives can maintain records on 2,600 different items; double sided drives can handle about 5,000. Documentation is quite complete and the package is menu driven. Infotory allows the user to make entries and inquiries on individual items at will. Inventory reports, sales analyses, cost analyses, and price lists can be obtained, as well as on-hand and on-order cost and numbers for individual items. The program includes a reorder reminder when items are running low in stock and provides a reorder list on command.

Title: Insure

Source: The Software Terminal

Cost: \$250 (as of 12/1/83)

Hardware Requirements: IBM PC, 128K; 2 disk drives; printer

Description: This package is designed to assist in the management of a small-to medium-sized insurance agency. It stores client records of almost forty items in the client master file. Also included are separate files on policies and paid and pending business. Mailing lists and labels are available on demand.

Title: Inventory Control

Source: BPI Systems

Cost: \$425 (as of 12/1/83)

Hardware Requirements: Apple II, II+, IIe, IBM PC; 2 disk drives; printer

Description: The BPI Inventory Control package is designed to operate alone or in conjunction with the General Accounting System that includes a total of five applications packages: payroll; general ledger; accounts receivable, accounts payable, and inventory control. This highly automated system is fully menu driven and includes tutorial materials in the documentation to teach the beginning user. Each inventory record includes fifteen items of information. The program takes orders, inquiries, updates, purchases, credit memos, and other user input; produces shipping orders, routing slips, purchase orders, invoices, customer lists, and vendor lists; and provides numerous management reports such as inventory control general ledger, profit and loss statements, trial balances, order lists, and cash receipts, among many others. This is a very complete and versatile system.

Title: Inventory Control System

Source: Radio Shack

Cost: \$299 for Model II; \$399 for Model II and 16 (as of 12/1/83)

Hardware Requirements: TRS-80 Model II with floppy or hard disk, Model 16 with hard disk

Description: The program assists in cycle counting, ordering, and report generation. As purchases are made, the program posts receipts, prints mailing labels, and fully maintains files on listed items. Inventories are updated as purchases are made and reorder lists and company purchase orders are prepared as inventories are depleted.

Title: KYC (Know Your Client)

Source: Executive Microcomputing Software

Cost: \$124.95 (as of 12/1/83)

Hardware Requirements: Apple II, II+, IIe, IBM PC, 48K; disk drive, printer optional

Description: KYC is a client-prospecting and follow-up system. It maintains information on client name, title, address, phone, company name, and data on last contact; keeps track of "callback requests"; and provides lists of clients who have not been contacted in the last thirty and sixty days. Mailing lists and mailing labels can be generated.

Title: Lazy Writer

Source: AlphaBit Communications

Cost: under \$50 (as of 12/1/83)

Hardware Requirements: TRS-80, 32K, disk drive, printer

Description: Using this standard word processing package, the operator can produce letters, forms, memoranda, mail labels and lists, manuscripts, and other written material of any length. Features are fairly standard. Included are boldface and underlining, which are not contained in many word processing packages.

Title: Money Decisions, Vol. I, Vol. II

Source: Eagle Software Publishers

Cost: \$199 for Vol. I; \$229 for Vol. II; \$399 for Vol. I and II (as of 12/1/83)

Hardware Requirements: Apple II, II+, IIe, IBM PC, TRS-80 (TRS-80 uses CP/M); disk drive, printer

Description: This is a sophisticated set of programs that facilitates management decisions. It allows such comparisons as lease versus buy and provides analyses of break-even points. Trend analysis and projection and pricing and production decisions are handled as well as capital budgeting. In addition, the program has extensive graphics capability for graphic analysis and additional applications for accounting, banking, manufacturing, medicine, construction, civil engineering, and equipment leasing. Vol. I consists of thirty-four programs; Vol. II has thirty-six programs.

Title: Multiplan

Source: MicroSoft

Cost: \$250 (as of 12/1/83)

Hardware Requirements: Apple II, II+, IIe; IBM PC; TRS-80 Model I, II, III; disk drive, printer

Description: Multiplan is an electronic spreadsheet with up to 255 rows and up to 63 columns. Each cell in the matrix starts out blank, but the user can enter numbers, labels, or formulas as desired. No knowledge of programming is required; however, effective use of such programs requires that the user learn the package and its commands thoroughly. Tutorial examples are included in the documentation for this purpose. Multiplan allows the user to "link" up to eight different files on the diskette for more complex analyses. This feature allows the user to make an entry on one spreadsheet and have all of the cells that are affected in the other sheets automatically updated. Electronic spreadsheets are ideal for financial projections, comparison of management alternatives, and answering "what if" questions using budget data or production data. Like other spreadsheets, Multiplan can be used in such "modeling" or simulation roles.

Title: Order Entry/ICS

Source: Radio Shack

Cost: \$499 for Model II; \$599 for Model 16 (as of 12/1/83)

Hardware Requirements: TRS-80 Model II and 12 with 4 disk drives or hard disk, Model 16 with 3 disk drives or hard disk; 15" wide printer

Description: This package is one part of a complete accounting system marketed by Radio Shack. It requires and interacts with the Accounts Receivable package and feeds information to the Sales Analysis Program. Orders are entered and edited as needed. The program provides the following reports: item receipt register, billing register, picking tickets; order list, price list, item stock status report; and a purchasing advice report. The program allows either single-pass invoicing or a two-pass order with separate billing.

Title: The Order Scheduler

Source: High Technology Software Products

Cost: \$150 (as of 12/1/83)

Hardware Requirements: Apple II, II+, IIe, printer, 2 disk drives

Description: The Order Scheduler accepts purchase order entries from the user and maintains them on a first-in, first-out basis until they are shipped. It prints a complete daily shipping list, maintains a current inventory of shipped items, and deletes items from inventory as they are purchased. Purchases that are to be filled repeatedly can be entered once and reactivated at the specified interval. The system can handle up to five hundred separate purchase orders at a time.

Title: P.A.C.E. (Prompt Accurate Cost Estimator)

Source: High Technology Software Products

Cost: \$395 (as of 12/1/83)

Hardware Requirements: Apple II, II+, IIe, III, IBM PC, 64K; 2 or 3 disk drives; 132-column printer

Description: P.A.C.E. is a general purpose cost estimation system that accepts detailed budgetary input from the user. As in all spreadsheet-type programs, it is not a substitute for accurate budgeting and record keeping on the part of the user. It provides a detailed statement of estimated cost, including a list of resources needed and time requirements. When prices or estimated data change, the program automatically recalculates and updates throughout the system.

Title: Payroll

Source: Continental Software

Cost: \$250 (as of 12/1/83)

Hardware Requirements: Apple II, II+, IIe; 48K; 2 disk drives, printer

Description: Continental Software has assembled a complete four-module accounting system, of which Payroll is one part. Complete personnel files are maintained on each employee to include: time worked, wage or salary, earnings, withholdings, vacation time earned and used, sick leave time earned and used, and more. The program includes current federal income tax and FICA tables that can be updated by the user as they change. The program calculates the payroll, prints the checks, and updates the payroll account automatically. For an additional fifty dollars yearly, Continental will supply updated tax data disks.

Title: Payroll

Source: Radio Shack

Cost: \$599 for Model II and 12; \$699 for Model 16 (as of 12/1/83)

Hardware Requirements: TRS-80 Model II, 12, or 16 with 2 disk drives or hard disk; 15" printer with tractor drive

Description: This is a complete payroll system that accepts wage or salary data, computes payroll, and prints checks. It then interfaces with the general ledger system to update the payroll account contained there. It handles hourly or salaried employees and allows up to seven different payroll frequencies. Vacation, sick leave, and recall information are maintained, and up to one year of detailed pay history can be recalled. The package computes deductions for taxes and prints out W-2 forms at the end of the year.

Title: PFS:File

Source: Software Publishing

Cost: \$125 for Apple; \$140 for IBM (as of 12/1/83)

Hardware Requirements: IBM PC with 64K, Apple II, II+, IIe, with 48K; 1 disk drive required, 2 disk drives preferred; printer

Description: A very sophisticated data management system, PFS:File has excellent documentation and is easy to learn and simple to use. It allows the user to develop virtually any data format required. The screen shows exactly what the printed matter will look like to facilitate form design. Item lengths are completely open up to the maximum length of a given form. This feature allows for descriptive material or remarks sections to be included. The current version includes numerical or alphabetic searches and sorts: keyword, greater than, less than, between, and "not" searches. Updating of existing entries, addition of new entries, and reformatting of existing formats can be accomplished without loss of data previously entered. Mailing labels, checks, and forms of almost any kind can be printed. Only one type of form can be maintained per disk, which seems a bit wasteful of disk space; however, this cuts down on the likelihood of errors. The programs can search any combination of fields at one time. If the form is developed with sorting in mind, the program can sort more than one field at a time.

Title: PFS:Graph

Source: Software Publishing

Cost: \$175 (as of 12/1/83)

Hardware Requirements: Apple II, II+, IIe, 64K, 2 disk drives; graphics capable printer with graphics interface; color monitor preferred but not required for monochrome display

Description: PFS:Graph produces line, bar, and pie graphs in monochrome or color. While true text is not available, the high-resolution graphics text generator provides a labeling capability for this program. Data stored on PFS:File can be used to generate graphs, or data can be specified separately. Pictures are saved as binary files that can be "dumped" onto graphics-capable printers.

Title: Property Listings Comparables

Source: Realty Software

Cost: \$325 (as of 12/1/83)

Hardware Requirements: IBM PC; disk drive, printer

Description: This package provides a system for the maintenance of property listings and comparable recent sales. It allows for the selection of appropriate listings by price range, number of bedrooms, number of units, city, and zone. One characteristic or a combination of characteristics can be specified by the prospect and the program selects all appropriate listings. Performance selections can be made based on a maximum gross factor, maximum price per square foot of improvements, and minimum cash flow required; in any combination.

Title: The Prospector

Source: Executive Data Systems

Cost: \$300 (as of 12/1/83)

Hardware Requirements: IBM PC, 128K, disk drive, printer

Description: This is a sales prospect and follow-up organizer. It supports sales efforts using personal sales calls; keeps a file on customers; assists in direct mail advertising by printing mailing lists; separates regular clients from prospects; maintains supplier lists; and prints mailing labels. All lists can be broken down into subsets based on user-specified criteria.

Title: Restaurant Inventory Control and Cost Analysis Program

Source: Advanced Analytical Computer Systems

Cost: Contact vendor for quote

Hardware Requirements: IBM PC, 128K, 2 disk drives, 132-column printer

Description: This program maintains a perpetual inventory and supply reorder list and provides the capability to conduct a food cost analysis, menu item analysis, sales mix analysis, and a current menu item cost analysis. As the inventory control detects an upcoming shortage, a list of food item reorders is generated along with printed purchase orders. This program can be used in all types of restaurants and bars. Vendor/supplier lists are maintained and can be updated as needed.

Title: Sales Analysis

Source: Micro Business Software

Cost: \$1,000 for source code; \$200 for object code (as of 12/1/83)

Hardware Requirements: Apple II, II+, and IIe with CP/M only with 4 disk drives; IBM PC 64K using PC DOS with 4 single-sided or 2 double-sided disk drives; printer

Description: This package is designed for use with the vendor's Accounts Receivable and Order Entry/Inventory Control packages. For that reason, it is not a stand-alone system. This system produces the sales analysis reports by customer, customer category, state, item, item category, sales person, and for total sales.

Title: Sales Analysis

Source: Radio Shack

Cost: \$299 for Model II and 12; \$399 for Model III (as of 12/1/83)

Hardware Requirements: TR-80 Model II or 12 with 4 disk drives or hard disk; Model 16 with 3 disk drives or hard disk, 15" printer with tractor feed

Description: This is the final component in the complete accounting system from Radio Shack. It takes data from the customer file of the Accounts Receivable package or the item file of the Order Entry/ICS program. Analyses include sales activity by customer, sales activity by type of customer (determined by user), sales volume by customer, sales volume by salesperson, summary by state, summary by item or item category, and total sales volume.

Title: **Scriptit**

Source: Radio Shack

Cost: \$399 (as of 12/1/83)

Hardware Requirements: TRS-80 Model II or 12; disk drive; printer

Description: Scriptit is Radio Shack's answer to AppleWriter II and IBM's EasyWriter. It is a very good general purpose word processing system and includes all of the expected features. In addition, this program allows for underlining, subscripts, superscripts, and boldface type. Scriptit is a screen-oriented system; which means that the printed material will be essentially identical to the screen version, with the exception that formatting of printed copy can be done by means of commands embedded in the text itself.

Title: **The Store Manager**

Source: High Technology Software Products

Cost: \$250 (as of 12/1/83)

Hardware Requirements: Apple II, II+, IIe, 48K, 2 or 3 disk drives

Description: The Store Manager accepts order entries and maintains continually updated inventory on a maximum of 1,160 different items. It provides up-to-the-minute sales totals for the entire store or by item. In addition, it prints customer invoices, price quotations, receiving reports, packing slips, purchase orders, and expense vouchers. The program is menu driven and uses plain English to communicate with the user. Also available on command are inventory reports, reorder lists, item movement report, item turnover report, alphabetized listings, and presorted mailing lists.

Title: **Tax Decisions**

Source: Eagle Software Publishers

Cost: \$299 for IBM; under \$200 for Apple and TRS-80 (as of 12/1/83)

Hardware Requirements: Apple II, II+, IIe, TRS-80 Model I, II, III using CP/M, IBM PC, printer

Description: Tax Decisions was developed by tax professionals to be used by members of the profession. It performs most routine tax number crunching to allow the tax planner to concentrate on tax planning instead of computation. As with any tax program, the user should make sure the program version is the current one and conforms to present tax laws and regulations.

Title: Time Manager

Source: Image Computer Products

Cost: \$150 (as of 12/1/83)

Hardware Requirements: Apple II, II+, IIe, 48K; printer (An internal clock and 80-column board are optional.)

Description: Time Manager provides a personal or professional desk calendar. It generates daily agenda and "to do" lists. Uncompleted items move to the next day. Items are given priority according to a user-assigned code. Permanent dates such as holidays need be entered only for the first year; they will appear each year thereafter.

Title: Time Manager

Source: IBM

Cost: \$100 (as of 12/1/83)

Hardware Requirements: IBM PC with, 64K, 1 or 2 disk drives; printer

Description: A simple-to-use program, Time Manager provides the user with a computerized desk calendar. Not only does it maintain a schedule of appointments; it provides daily agenda; a daily "to do" list; and an automatic reminder of important deadlines. It tracks events and expenses individually or by category; data can later be collected in several categories to support, for instance, tax records.

Title: Time Manager

Source: Radio Shack

Cost: \$99.95 (as of 12/1/83)

Hardware Requirements: TRS-80 Model I and III, 48K, disk drive, printer optional

Description: This relatively simple program maintains a personal or professional appointment calendar and provides a reminder for scheduled meetings and deadlines. In addition, Time Manager provides a permanent record, daily "to do" lists and agenda, and uncompleted items are automatically transferred to the next day's list.

Title: **VersaPayroll**

Source: H&E Computronics

Cost: \$99.95 (as of 12/1/83)

Hardware Requirements: IBM PC; 2 disk drives; printer, 48K

Description: This is one component of the complete five-program VersaBusiness System, but can be operated as a stand-alone system. It maintains complete payroll and financial data on all employees of a small business. It includes current tax tables that can be manually updated as the rates change. The program computes payroll, prints the checks, updates the payroll accounts, and prints out employee data sheets and quarterly reports. At year-end, W-2 forms are provided. A thirty-day money-back guarantee is included with the purchase.

Title: **VisiCalc**

Source: VisiCorp

Cost: \$200 for IBM; \$250 for Apple; \$299 for TRS-80 (as of 12/1/83)

Hardware Requirements: Apple II, II+, IIe, IBM PC, TRS-80 Model I, II, III, disk drive, printer

Description: The all-time best seller among electronic spreadsheets, VisiCalc provides a maximum of 254 rows by 63 columns. Each cell can accept a number, label, or a formula that automatically calculates a numerical entry for the user. Formulas can be specified for individual cells or replicated easily for segments or complete rows or columns. The excellent documentation includes tutorial materials to help the user learn the package's features and commands, which do tend to be a bit cryptic and confusing at times. Electronic spreadsheets are very useful for making economic projections, alternative comparisons, and answering "what if" questions using budget or production data. Routine calculations and recalculations resulting from additions or changes in any data cell are done automatically, resulting in greater accuracy and less work than manual spreadsheet work.

Title: **VisiDex**

Source: VisiCorp

Cost: \$250 (as of 12/1/83)

Hardware Requirements: Apple II, II+, IIe with 48K; IBM PC with 64K, disk drive, printer

Description: VisiDex is a data and time management system; it allows the user to organize business or personal information and provides a file maintenance system. Names, addresses, phone numbers, dates, "to do" lists, records of decisions and meetings, highlights of reports, tax information, and stock can be maintained. The program allows unlimited cross-referencing. A daily calendar is provided for maintaining appointments and for keeping track of upcoming events.

Title: VisiSchedule

Source: VisiCorp

Cost: \$300 (as of 12/1/83)

Hardware Requirements: Apple II, II+, IIe with 48K; IBM PC with 64K, at least 2 disk drives, printer

Description: Complex project planning and scheduling are done with relative ease using VisiCorp's new VisiSchedule. Critical time paths are determined automatically based on input characteristics. It allocates time, costs, specifies start and end time, vacation days, intermediate deadlines, and project slack time for machines and workers. This is a powerful simulation-modeling tool for decision making as well, because the user can address "what if" questions simply by changing input characteristics.

Title: VisiTrend/Plot

Source: VisiCorp

Cost: \$300 (as of 12/1/83)

Hardware Requirements: IBM PC, 128K, disk drive, color graphics monitor adapter, color monitor, printer with graphics capability and graphics dump interface

Description: VisiTrend/Plot produces professional quality graphic displays of line, bar, pie, and hi-low charts, with IBM's superior graphics and mixed text capability. It accepts data manually or from VisiCalc files. Linear multiple regression projections are calculated from VisiCalc data and the projections are graphically presented. Trend projection is done with straight line, smoothing, or moving averages.

Title: WordStar

Source: MicroPro International

Cost: \$495 (as of 12/1/83)

Hardware Requirements: Apple II, II+, IIe, with CP/M capability and 80-column card, IBM PC, 48K, 1 or 2 disk drives, printer

Description: This is generally regarded as one of the better commercial quality word processing systems, although somewhat complicated to master. WordStar is a screen-oriented system, which means that the text will appear on paper as it appears on the screen. While this decreases the amount of text that can be stored as a single file, the advantages of this system are obvious. WordStar is the single most popular word processing system for the Apple.

MICROCOMPUTER TRAINING

To assist vocational educators in planning and implementing programs, advisory committees should be represented by industry personnel currently using computers in their operations. Business personnel could also be contracted to teach specialized courses when qualified teachers are not available. In addition, working partnerships with (at least frequent visits to) local small businesses in the teacher's occupational area that use computers could be excellent sources of information. Beyond this, vocational educators should seek additional microcomputer applications. Just because local farmers, for example, are not using electronic marketing is no reason the agriculture teacher should not organize adult classes on the subject. In fact, that is probably the best reason to do so. Similar examples could be given for any vocational program.

Simply knowing what the uses of the microcomputer are in an occupational area is not enough. Vocational teachers must be able to perform those tasks before they can teach them. There are several ways for teachers to gain the skills needed. Teacher education institutions offer courses and noncredit inservice workshops. State departments of education provide inservice workshops. Computer companies offer free or low-cost classes.* Computer users groups have sprung up all over the country. Moreover, most applications software can be self-taught by using tutorials in the program documentation. In addition, there are texts and programmed instruction available for using the more popular software packages.

Program planners may benefit also by attending the workshop designed to complement this guide. The workshop is offered by the National Center for Research in Vocational Education. In addition to familiarizing participants with instructional software and software with application for small business management, the workshop is designed to develop skills in systematic program planning.

In short, small businesses are rapidly adopting the microcomputer as a management tool and are in need of intelligent, unbiased advice and instruction on microcomputer use. If schools do not provide this instruction through existing adult education programs, then the microcomputer industry may be small businesses' only source for such instruction.

Organizational Approaches

Consideration must be given to the infusion of microcomputer training into vocational education at all levels—from prevocational exploratory programs to postsecondary programs to out-of-school programs. Vocational educators frequently think first of traditional in-school groups, ignoring less-structured adult programs. Certainly both of these audiences need and deserve this important new training.

*Instruction provided by vendors is usually slanted toward the products that they sell.

Adult education has been a traditional function of vocational education for many years, from informal short courses adjunct to the secondary program to structured, certificated programs at the postsecondary level. Following are suggested organizational structures and training methods vocational educators can use in training small business employees and potential employees to use microcomputers.

Secondary Level

A number of existing vocational education structures should incorporate microcomputer business applications instruction into their curricula. The first and most obvious is the traditional secondary school vocational program.

If the responsibility of secondary-level vocational educators is to train their students for entry-level employment, then instruction in microcomputer applications must be made an integral part of literally every vocational program. The farmer or agribusinessperson, for example, who is not computer literate will be at a serious disadvantage to his or her competitors who have mastered this important management tool. The prospective salesperson who cannot effectively deal with computers will find unnecessary limitations on available jobs.

This is not to imply that all vocational education teachers should teach word processing and other generic office skills in their classrooms and labs. Clearly this responsibility remains with business and office education. However, the rapid shift toward office automation dictates parallel changes in the traditional business and office education program in the secondary schools. Businesses of all sizes are coming to rely ever more heavily on the computer. In the case of small businesses, this usually means microcomputers because of their lower cost and more ready availability compared to mainframe computers and minicomputers. For the same reasons, this also means microcomputers in the business and office education departments of our secondary schools.

In a few schools this translates into computer programming and data processing offerings in the business department. In fewer cases, this means separate computer programming and operating offerings under some other vocational service area, normally trades and industry. In still fewer cases, this becomes specialized computer repair courses. All have implications for small business operations that need trained computer technicians, word processor operators, data processing specialists, and other workers whose work involves using computers.

Vocational education teachers have a responsibility to train entry-level workers in occupation-specific functions. For example, workers in virtually every occupational area use computers to perform functions peculiar to that occupation. For example, the tool and die and metals fabrication industries rely upon computer-assisted design (CAD), computer-assisted manufacturing (CAM), and computer-controlled robotics in their operations. No doubt, the future will see more rather than less reliance on computers in this very technical field.

Another traditional program that should be including occupation-specific computer applications is consumer and homemaking education. Diet analysis and planning, household budgeting, family income tax management, investment planning, information networking, and time management planning are just a few of the microcomputer applications that will be important to the homemaker of the future. It is the responsibility of home economics teachers to train their students in these emerging skills.

Order entry, inventory control, and many other computerized functions should be taught in marketing and distributive education. Feed content analysis and enterprise planning should be included in vocational agriculture.

Similar examples could be given for other vocational programs. The important thing to recognize is that it is the responsibility of vocational teachers to train their secondary students to use computers as occupational tools—particularly microcomputers—since they are the most affordable and numerous. This does not mean separate computer courses for each vocational program. Rather, it means using microcomputers as a routine part of the regular courses, just as cash registers, typewriters, welders, and sewing machines have been used as occupational tools. This basic responsibility is the first step in training for the use of microcomputers in small businesses.

Postsecondary Programs

Similar logic leads to the same conclusion regarding both credit and noncredit postsecondary programs. At this level instructors train students for specific occupations that currently use computers. Also, as at the secondary level, generic business and office skill instruction is, and should remain, the responsibility of business education departments.

Further, business education departments may need more microcomputers than most other programs. Just as traditional typewriting is rapidly being replaced by word processing, so too must the typewriter eventually be replaced by word processors in the vocational laboratory. And, as record keeping on paper ledgers is rapidly being replaced by computerized accounting systems, so too must vocational educators begin to teach these more advanced skills to students—that is, if these students are to be adequately prepared for occupations in the business world of the future.

As at the secondary level, virtually every postsecondary vocational instructor should be prepared to train students in the occupation-specific computer skills required by their respective industries. One example is the health field. Postsecondary programs training practical nurses, laboratory technicians, emergency medical technicians, and medical and dental office workers cannot afford to ignore the role of computers. The majority of graduates of these programs will go into individual medical offices and small businesses where they will no doubt be using microcomputers.

It could be argued that certain workers such as electricians have less need for computer training than do other workers. Such an assertion is valid only to a limited degree. For those workers who find employment in small businesses, it becomes even less valid. The general contractor or subcontractor who must make job cost estimates, maintain inventories, financial records, income tax records, and employee records; develop financial reports; apply for loans; and generally function as a small businessperson, needs to use the microcomputer. Admittedly, small businesspersons may have survived in the past very well without computers. However, in the future the small businessperson who effectively uses the capabilities of the microcomputer will have a decided advantage over the businessperson who relies entirely on paper, pencil, and calculator.

Adult Education

It is at the level of adult education that vocational educators can have the most immediate impact on the small business community. Large industries invest many millions of dollars annually in updating, training, or retraining their workers, whereas small businesses must rely on either

public or proprietary educational systems, particularly vocational education, to provide training for their workers.

Adult education programs traditionally have been real-world, problem-oriented, short courses offered periodically under the auspices of vocational education. The advent of microcomputer technology now provides an additional real-world problem that deserves immediate attention by all vocational educators. Examples of program areas and appropriate courses for adults are as follows:

- The business instructor at both secondary and postsecondary levels should offer word processing and automated data processing courses on their microcomputers.
- The industrial arts teacher should teach robotics and CAD/CAM for small business.
- The agriculture teacher should teach farm management and decision making through the Young Farmer program or other adult programs.
- The automotive instructor should teach automated parts management.
- The marketing teacher should teach inventory control on the microcomputer.

Training Methods

In teaching computer use, there are three specific training methods, or approaches to instruction, that can be utilized by vocational educators. These are computer-assisted instruction (CAI), in-school businesses, and the project approach to instruction.

Computer-assisted instruction (CAI)

One intriguing capability of the microcomputer is its ability to interact with its user. This characteristic allows the machine to give instruction. This approach is called computer-assisted instruction and consists of any actual instruction that a computer presents to the learner.

CAI can take many forms. The simplest form is drill and practice. A drill and practice CAI package teaches a specific skill to the student by reinforced repetitions of the task. For small businesspersons, this is exemplified by various typing instructional packages available for most major microcomputers today. These typing packages teach typing by means of practice sessions of increasing difficulty; keep track of learner progress; and administer typing tests; score them; and point out areas of strength and weakness. Thus, businesspeople who need to learn or improve their typing can do so without attending formal classes.

A somewhat higher level of learning can be accomplished by means of CAI tutorials. A tutorial package teaches cognitive or psychomotor skills. Many of the better commercial applications software packages include tutorial materials as a part of the initial purchase. Often these include not only computer software, but also written tutorial materials. A large number of CAI tutorials are available to teach concepts not limited to specific applications software. Several major microcomputer manufacturers have tutorials that teach users how to write their own programs.

The form of CAI that takes most advantage of the computer's inherent capabilities is the simulation. A simulation is simply a model designed to represent some real-life situation. Typical simu-

lations use mathematical models to allow learners to respond to a particular situation and then tell students what the probable result of their responses would have been. A variety of microcomputer CAI simulations are available today to teach economic and business concepts and skills; and several are reviewed in the next section.

Although excellent commercial CAI simulations are available, probably the most valuable instructional program for the small businesspeople is one that applies to their actual situations. For example, the most useful simulations are those that vocational teachers can develop using business programs such as electronic spreadsheets. The use of commercial applications software in this mode does not take up that much extra time. Essentially, the teacher constructs sample data sets and then enters them on an electronic spreadsheet such as VisiCalc, MagicCalc, and SuperCalc. By varying any parts of the data in class, the instructor can show the probable results of real-world business decisions. As an example, a farmer may be interested in the effects of deleting an acre of corn and adding an acre of soybeans. By using such a spreadsheet, the adult agriculture teacher not only teaches the farmer the value of adequate records and how to construct budgets, but can answer numerous "what if" questions.

In-School Businesses

One of the long-standing teaching tools of vocational education has been the in-school business. Whether the school store that sells student supplies, the auto shop that performs live work, or the greenhouse that sells plants to the public, such enterprises offer opportunities for vocational students to learn real-world skills in structured settings. The teacher who makes all the management decisions without student input is missing a great teaching vehicle. Moreover, as microcomputers continue to invade the small business world, it is incumbent upon the vocational teachers to ensure that their students receive realistic training—and that means business-related computer experience.

Does that mean teaching vocational students to program computers? Must every vocational teacher become a computer programmer? Hardly! It would be difficult to imagine a more superfluous skill for the average vocational teacher or student. However, it does mean learning to operate the computer as one learns to operate a typewriter or a duplicating machine. It does mean learning to run a business applications program as one would learn to play a videotape or fill out a records book.

Additionally, the school farm equipment inventory, depreciation schedule, financial records, and production records should be computerized and the students should learn to operate the programs. The school store should computerize its inventory control, purchasing, and financial records and the students should perform the routine data processing and analysis functions. Every vocational area operating any type of school business should computerize its business operations and teach its students to access, use, and analyze those records. This not only allows for a more efficient operation of the school business, the student gains additional job skills.

Project Approach

Much work has been done in recent years regarding entrepreneurship training in vocational education. This concept does not differ substantively from the farm project approach traditionally used in vocational agriculture before the Smith-Hughes Act of 1917 was enacted. For the purposes of this guide, these approaches will be referred to collectively as the project approach.

In the project approach to instruction, students are expected to establish and manage their own business enterprises. It may be as small as operating a newspaper route, or it can be as large as carrying out a farming operation. Regardless of its nature, all of the responsibilities, risks, and opportunities normally inherent in small business operation accrue to the students, except on a smaller scale and with the advantage of a teacher to provide advice and guidance.

Students who have accepted the responsibility to carry out business enterprises on their own, and who stand to earn or lose money as a result of their efforts, are easily motivated. The project approach provides an ideal vehicle to train future entrepreneurs to use microcomputers in small business operation. In fact, it is in this setting that the microcomputer becomes most valuable. Keeping project records, expenses, receipts, and customer and vendor lists; preparing business correspondence; and performing other routine business operations are perfect examples. In general, students like to work with computers. For the student with profit as the additional motivation, the value of the microcomputer as a business tool makes learning business applications software important. Although this approach would not be appropriate for use with a small business operator or manager, it does provide excellent preparation for potential employees of small businesses.

INSTRUCTIONAL SOFTWARE REVIEWS

Instructional software differs in both form and substance from business applications software. The former is concerned with user self motivation, instruction, evaluation, and feedback. It must be attractive and often relies on graphics and sound effects. The latter assumes user motivation; provides instruction only in the documentation; and is concerned with performing a function efficiently. For more explanation of these differences, see the section entitled Evaluation of Software.

Following is an alphabetical listing and description of selected instructional software packages available for teaching concepts and skills in small business management. Each review includes title, source, cost, hardware requirements, and description. Sources' addresses and phone numbers are in appendix A.

Guide to Instructional Software Reviews

Title	Page
Accounting Applications for the Microcomputer	42
Advertising Techniques	42
Agriculture Marketing and Commodity Features	42
A Microcomputer Testing Program For Accounting: Systems and Procedures	43
Automated Accounting for the Microcomputer	43
Business Education Package I	43
Business Education Package II	43
Business Education Package III	44
Business Volume I	44
Business Volume II - Payroll	44
Business Volume III - Accounting	45
Cartels & Cutthroats	45
Change Maker	45
Data Entry Activities for the Microcomputer	45
The Electronic Spreadsheet	46
Enterprise Sandwich Shops	46
Free Enterprise	46
KeyStrokes	47
Market Trend Program	47
Metro Office Systems: A Computerized Payroll Application	47
Microcomputer Accounting Applications	47
Microcomputer Activities for Record Keeping	48
Profit & Loss	48
The Shoebox Accounting Practice Set	48

Title	Page
Sounds Abound: An Accounting Simulation for Microcomputer and Manual Application	49
Typing Tutor	49
Using the VisiCalc Program	49

Title: Accounting Applications for the Microcomputer

Source: Gregg/McGraw-Hill

Cost: Check with vendor

Hardware Requirements: Apple II; II+; IIE; 32K; TRS-80 Model III; 2 disk drives; printer

Description: This tutorial and simulation teaches the student concepts and procedures in general ledger, accounts receivable, accounts payable, and payroll. This is not a self-contained course; but should be used as a supplement to regular instruction in accounting or computerized accounting.

Title: Advertising Techniques

Source: Micro LearningWare

Cost: \$24.95 (as of 12/1/83)

Hardware Requirements: Apple II; II+; IIE; minimum 32K; disk drive

Description: This tutorial package teaches general advertising concepts rather than providing realistic "how to" instruction for small businesspeople who need to learn how to do their own advertising; however, it would serve as an introduction to the topic.

Title: Agriculture Marketing and Commodity Futures

Source: Micro LearningWare

Cost: \$449 (as of 12/1/83)

Hardware Requirements: Apple II; disk drive; printer

Description: Although this software is actually designed as an industry applications package, it provides tutorial materials and can easily be used with real or simulated data to teach farm management decision making. Included are programs to compare storage alternatives; new crop alternatives; and livestock alternatives; to maintain storage; crop; and livestock budgets; and to examine and maintain up to ten future accounts.

Title: **A Microcomputer Testing Program for Accounting: Systems and Procedures**

Source: Gregg/McGraw-Hill

Cost: \$175 for 4-disk set; \$2.40 for teacher's manual (as of 12/1/83)

Hardware Requirements: Apple II, II+, IIe, TRS-80 Model III, disk drive, printer

Description: This is an objective test covering concepts and skills learned in the accompanying text. The program gives immediate feedback to students and prints class reports for the teacher.

Title: **Automated Accounting for the Microcomputer**

Source: South-Western Publishing

Cost: Individual student diskette for \$37.50 (only available to one student at a time); driver program for \$59.50 that allows any number of students to use the program; text and workbook for \$6.83 (advanced version that allows networking to a teacher-controlled computer available for TRS-80 Model III & IV only) (as of 12/1/83)

Hardware Requirements: Apple II, II+, IIe, TRS-80 Model I & II, 32K, disk drive, printer

Description: In this computer program system for teaching automated accounting, the student moves through ten chapters, while receiving related classroom instruction specified in the teacher's manual. Simulations with tutorial materials are used to teach computerized general ledger, processing journal entries, production of financial statements, accounts receivable, accounts payable, and payroll.

Title: **Business Education Package I**

Source: Micro LearningWare

Cost: \$24.95 complete (as of 12/1/83)

Hardware Requirements: Apple II, II+, IIe, TRS-80 Model I & III; 32K when used with disk; 16K required for TRS-80 cassette version, printer optional

Description: A combined tutorial and simulation, this package teaches students how to calculate loan amortization, bank statement reconciliation, and depreciation in three separate programs. A fourth program provides a stock market simulation game.

Title: **Business Education Package II**

Source: Micro LearningWare

Cost: \$24.95 complete (as of 12/1/83)

Hardware Requirements: TRS-80 Model I & III; disk and 32K or cassette and 16K

Description: A tutorial provides instruction in basic accounting concepts such as the T-account, double entry journals, ledgers, and financial statements. A simulation of a general ledger allows students to make entries and to display but not print trial balances, account balances, and financial statements. An additional program allows students to calculate annuity values based on amount invested, interest rate, and amount and frequency of withdrawals.

Title: **Business Education Package III**

Source: Micro LearningWare

Cost: \$24.95 (as of 12/1/83)

Hardware Requirements: Apple II, IIe, II+, TRS-80 Model I & III; disk drive; 32K; printer

Description: This package contains a complete general ledger system. Essentially it is an applications package; except that it includes two complete simulation project sets with solutions.

Title: **Business Volume I**

Source: MECC

Cost: \$37 (as of 12/1/83)

Hardware Requirements: Apple II (32K), disk drive

Description: This is a collection of practical programs—i.e., interest on installment buying, effects of simple and compound interest, loan amortization, business financial reports, money supply, payroll, and the 1040A form—that are useful in a variety of business education settings. A tutorial format is used.

Title: **Business Volume II - Payroll**

Source: MECC

Cost: \$39 (as of 12/1/83)

Hardware Requirements: Apple II; 32K; two disk drives; printer

Description: A simulation allows the class to set up and operate a complete payroll for a hypothetical company's automated payroll, print checks; and prepare quarterly reports and W-2 forms.

Title: Business Volume III - Accounting

Source: MECC

Cost: \$56 (as of 12/1/83)

Hardware Requirements: Apple II, 32K, disk drive, 132-column printer

Description: A simulation provides students with structured experiences on accounts payable, accounts receivable, general ledger, and inventory control systems. The set includes source documents from which students extract information. Complete sets of reports are returned to students in printed form.

Title: Cartels & Cutthroats

Source: Strategic Simulations

Cost: \$39.95 (as of 12/1/83)

Hardware Requirements: Apple II, II+, IIe, 48K

Description: This is a business management simulation game designed for use at either high school or college level. The game accepts up to six players or teams. Each player is required to set production levels, purchase raw materials, set selling price, make advertising decisions, and perform several management functions. In addition, the program provides complicating factors with which companies must contend, such as strikes, technological advances, changing interest rates, and others. Each player receives profit and loss statements, balance sheets, sales reports, and other management reports.

Title: Change Maker

Source: Micro LearningWare

Cost: \$8.95 (as of 12/1/83)

Hardware Requirements: Apple II, II+, IIe, disk drive, 32K

Description: In this very simple drill and practice for making change, the student is given no instruction in how to make change, but must practice listing the correct number of pennies, nickles, and so forth, given a cost and amount tendered.

Title: Data Entry Activities for the Microcomputer

Source: South-Western Publishing

Cost: \$59.50 for diskette; \$4.16 for text and workbook (as of 12/1/83)

Hardware Requirements: Apple II, II+, IIe, TRS-80 Model I and III; minimum 32K, disk drive

Description: Through a sequence of eleven progressive learning activities guided by a workbook with problems and solutions, the students look at the history of data entry, inventory control, accounts receivable, accounts payable, bank statement reconciliation, payroll, general ledger, and point-of-sale terminals. The teacher's manual includes exams and answers.

Title: **The Electronic Spreadsheet**

Source: MECC

Cost: \$42 for software; \$4.50 for student's manual (as of 12/1/83)

Hardware Requirements: Apple II; disk drive, printer (user supplies VisiCalc)

Description: This tutorial introduces the student to the VisiCalc spreadsheet and its commands and provides practice problems along with solution sheets. The diskette includes templates for use in solving some of the practice problems. Problems are grouped for use in specific business courses.

Title: **Enterprise Sandwich Shops**

Source: Gregg/McGraw-Hill

Cost: \$199 (as of 12/1/83)

Hardware Requirements: Apple II, II+, IIe, TRS-80 Model III; minimum 32K, disk drive, printer

Description: In this simulation game of a small-business operation, the student is required to make purchasing, advertising, and pricing decisions. Seasonal demand shifts are taken into account, as well as spoilage, personnel decisions, equipment, and inventory.

Title: **Free Enterprise**

Source: SRA Software

Cost: \$100 (as of 12/1/83)

Hardware Requirements: Apple II+ (48K), IBM PC (64K); disk drive, printer

Description: This is a simulation of competing companies making the same product. Up to six students or groups of students are allowed to compete against each other. The measure of success is overall profit or some other agreed-upon criterion.

Title: **KeyStrokes**

Source: Houghton Mifflin

Cost: \$30 for user's manual and diskette; \$2.25 for teacher's manual (as of 12/1/83)

Hardware Requirements: Apple II+, Apple IIE; IBM PC; TRS-80 Model III, disk drive, printer

Description: This drill and practice touch-typing package teaches keyboard skills in an increasingly difficult progression. It uses real prose rather than "nonsense" letters. This package is suitable for the beginner who needs to learn the keyboard and the advanced student who needs to improve speed and accuracy.

Title: **Market Trend Program**

Source: Southern Minnesota Software

Cost: \$19.95 (as of 12/1/83)

Hardware Requirements: TRS-80 Model I or III, 16K; disk drive or cassette recorder

Description: A very simple applications package, this program allows the user to track stock market highs, lows, closes, and volumes on a daily or weekly basis. It is useful as a class activity with real data as a teaching tool.

Title: **Metro Office Systems: A Computerized Payroll Application**

Source: Gregg/McGraw-Hill

Cost: \$110 for software, \$4 for student's manual, \$4 for teacher's manual and key (as of 12/1/83)

Hardware Requirements: Apple II, II+, IIE, TRS-80 Model III, 2 disk drives; printer

Description: This package was designed for use with the software package Payroll Records and Procedures by the same manufacturer. Students use a practice set of source documents and other data to construct computerized payroll for a simulated company.

Title: **Microcomputer Accounting Applications**

Source: Gregg/McGraw-Hill

Cost: \$150 for software, \$4.20 for text and workbook, \$2.52 for teacher's manual (as of 12/1/83)

Hardware Requirements: Apple II, II+, IIE; TRS-80 Model III, disk drive, printer

Description: This simulation allows students to apply accounting procedures taught in a regular class setting to gain experience in computerized accounts receivable, accounts payable, payroll, and general ledger.

Title: **Microcomputer Activities for Recordkeeping**

Source: Houghton Mifflin

Cost: \$4.50 for student activities book, \$59.97 for 2 diskettes, \$2.25 for teacher's manual (as of 12/1/83)

Hardware Requirements: Apple II+, Apple IIe, IBM PC, TRS-80 Model III; disk drive; printer

Description: In this simulation of eight entry-level, record-keeping transactions, the student uses source documents such as invoices and purchase orders to produce a daily sales report; cash receipts summary, cash payments summary, purchase order register, payroll register; and weekly time report.

Title: **Profit & Loss**

Source: Gregg/McGraw-Hill

Cost: \$99 complete package (as of 12/1/83)

Hardware Requirements: Apple II; Apple II+; Apple IIe, TRS-80 Model III, minimum 32K, disk drive; printer

Description: Profit & Loss is a simulation game of the operation of a small business. It requires students to make business decisions, particularly with regard to pricing, supply-and-demand relationships, advertising, and the interpretation of income statements.

Title: **The Shoebox Accounting Practice Set**

Source: Gregg/McGraw-Hill

Cost: Check with manufacturer

Hardware Requirements: Apple II, II+, IIe, TRS-80 Model III; 2 disk drives, printer

Description: Students are given practice sets of source documents from which they extract data for analysis and decision making. Students set up a simulated accounting system for a hypothetical small business.

Title: Sounds Abound: An Accounting Simulation for Microcomputer and Manual Application

Source: Houghton Mifflin

Cost: \$3.39 for text and workbook, \$29.97 for diskette, \$2.25 for teacher's manual (as of 12/1/83)

Hardware Requirements: Apple II+; Apple IIe; IBM PC, TRS-80 Model III, disk drive, printer

Description: A simulation of accounting records of a business, this package includes source documents, accompanying stationary, and instructions.

Title: Typing Tutor

Source: MicroSoft Consumer Products

Cost: Approximately \$30 (as of 12/1/83)

Hardware Requirements: Apple II, II+, IIe; TRS-80 Model I and III, IBM PC, disk drive or cassette

Description: Currently the single most popular keyboard drill and practice, this package uses non-sense letters in a progressively difficult sequence to teach touch-typing skills and to develop speed and accuracy. The keyboard is monitored twenty times per second to keep track of learner's familiarity with individual keys. Speed, percentage accuracy, and number of mistakes are displayed for the student. It is useful for anyone who needs to learn or relearn typing without attending formal typing classes.

Title: Using the VisiCalc Program

Source: SRA Software

Cost: \$70 complete (user supplies VisiCalc) (as of 12/1/83)

Hardware Requirements: IBM PC, 64K, 2 disk drives (user must have VisiCalc package to use this instructional package)

Description: This tutorial teaches the user to use VisiCalc to perform general business operations. It includes eight predetermined applications models ready for actual business use.

EVALUATION OF SOFTWARE

As previously stated, there are some 21,000 commercial software packages already on the market. The Business Software Matrix in this guide, lists over fifty software packages for some of the functional areas that are available for just one microcomputer. One researcher estimated that 150 new packages were developed each month in early 1983 and that this figure would rise to 250 new packages each month by late 1984. No wonder potential software purchasers often are overwhelmed when attempting to select software packages.

The purpose of this section is to answer specific questions concerning the purchase of software and to suggest criteria that will guide the selection process. Efficient use of software is not possible without giving consideration to software evaluation. A systematic means for assessing various software aspects such as hardware requirements, documentation, and content is required. This section describes also a software evaluation system designed for vocational educators and provides sample rating forms.

Software Purchase Overview

If you are in the process of buying software packages for your business or for home use (and especially if you are a novice), you may find the following commonly asked questions/answers concerning software purchase both informative and beneficial to the task.

1. What are you getting when you pay \$535 for a software package?

The typical software purchaser assumes that such a purchase carries with it all rights associated with ownership, but that is not usually the case. Most developers do not actually sell their software; rather they license the right to use their software diskette to the purchaser, while maintaining ownership of the diskette and the program contained on it. The purchase price of such software is not a purchase in the traditional sense of the word, but is more like a one-time rental fee. Such an arrangement is called a program license fee.

2. Can I copy the program or change it to suit my particular needs?

Since the software remains the property of the developer, its contents are not legally the property of the renter and as such cannot be legally copied, modified, or in any other way tampered with by the renter. Even when the vendor actually sells the software to a purchaser and conveys ownership, the program itself is almost invariably copyrighted. In fact, the developer's prohibitions often prevent purchasers from even making backups for their own use. These prohibitions may extend to using the same package in more than one location or on more than one computer in the same office.

3. How do software producers protect their products from pirating?

- In a further effort to prevent unauthorized software copying, or pirating, most developers "copy protect" their products with an assortment of programming and production techniques. It is possible to copy virtually any diskette using either specially written copy programs or hardware that has been specifically developed for that purpose. However, such activities are illegal and, as such, are certainly not good practice for a small business operator. Thus, when you purchase most software packages, you are purchasing or renting a single or perhaps an original and a "backup" diskette containing a program or series of programs designed to perform some function.

4. What provisions are provided by software producers for updating and upgrading software packages?

Many types of programs perform functions that change frequently. For instance, tax packages are based on regulations that change with every new Internal Revenue Service update. For this reason, reputable developers and vendors of such software packages frequently provide a "maintenance" or "update" service. Typical provisions allow the purchaser to purchase such updates for less than the normal fee. In some cases, the vendor may provide such a service on a cost-recovery basis. This can be an important consideration in software purchases.

5. What does source code mean?

Source code is the hard copy (printed) listing of a program. Without a listing, it is impossible for the user to make any customizing modifications to the program. If the developer/manufacturer allows the purchaser to make such modifications, a copy of the source code is required. One program described in the software section lists a source code fee. This fee is not normally included in the license fee and can be substantial. As another alternative, some developers/manufacturers prohibit the purchaser from making such alterations but provide such services themselves. Customizing fees can be based on a set amount or on an hourly rate for programming time.

6. What documentation updates can be expected?

As a rule, the purchaser receives a complete set of documentation (written instructions and explanations) with the original fee. This is not always the case, and additional documentation may be available at an additional charge. Further, as revisions are made to the basic documentation, the manufacturer may (or may not) provide it to existing licensees at reduced costs or free. This is an additional source of software costs that does not appear on the package.

7. How can knowing the reputation of the vendor be advantageous?

Another hidden source of potential cost lies in the financial position of the manufacturer. It is such a new industry that virtually anybody can sell software. This means there are many software manufacturers with less than stable business foundations. When one of those manufacturers declares bankruptcy, the software is routinely considered as one of the manufacturer's assets by the court. This eventuality could result in your having to repurchase rights to the software, this time from the manufacturer's creditors. Thus it is important to consider the reputation of the vendor as you make software decisions.

8. **Will user support be provided?**

User support can be extremely important. The developer/manufacturer who licenses software to you and then provides no mechanism to answer your questions or to provide advice and assistance should be viewed with suspicion in expensive software purchases. No matter how good the documentation, there will always be unforeseen problems and questions. A "hotline" using an 800 number for toll-free questions is a common service of the larger software companies.

Evaluation Criteria for Business Software

With the overwhelming supply of business software currently on the market, it is important for users to know what to look for in software packages, based, of course, on their particular needs and resources. The following criteria and discussion have been identified to help users evaluate and make appropriate software selection.

Motivational Incentives

Software developed for business purposes is typically free of many of the attention-getting gimmicks that characterize instructional software. Business software seldom uses graphics except for presentation of data and is usually presented on monochrome screens. It relies on the inherent incentive of the profit motive to drive its users and rarely, if ever, uses such personal touches as addressing the user by name. Business software, in other words, is practical and straightforward.

Business software must be simple to use and contain enough internal prompts to keep the user on track. Most users find that menu-driven software is easier to use than other formats. Menu driven means that the program returns throughout its operation to a list of the user's options and asks the user to specify which step is desired next. PFS:File, for instance, is menu driven. Whenever the user completes any operation, the program returns to the menu and presents the following options: (1) create file; (2) add form; (3) copy file, (4) search, (5) print, or (6) remove. These are all of the things that the program can do and the user must select one of them before proceeding. When one is selected, the program displays another menu that specifies all the ways it can perform that task. This format leads the user from one step to the next while decreasing the probability of human error.

If software is not menu driven, the user must remember or look up the command for each operation, such as saving files or for reading the catalog of files on the disk. This does not present a problem if the package is used frequently, because the operator quickly learns the commands when using them regularly. One disadvantage of menu-driven software is that additional programming is required to display and operate the menu itself. This may occupy memory space in the computer that could be used for working space. Thus, nonmenu-driven software can be more efficient users of memory, but menu-driven software can be easier to use.

Reliability

An additional characteristic particularly important to business software is reliable operation. Business decisions based on systematically wrong analyses can be potentially devastating. Yet that is just what can happen if incorrect formulas or procedures are programmed into a business

software package. An astute businessperson will not rely on new software for sensitive analyses until it has proven itself accurate by trial runs of sample data with known results. Reviews by reliable software critics may satisfy this requirement. Additionally, trial runs of a software package can uncover instances where the package simply does not do what it is supposed to do for a given situation and set of instructions. Again, reliable reviewers can help in this regard. Reputable software developers and manufacturers are probably the best safeguard against problems of this kind. A reputable manufacturer who discovers errors in its programs can be expected to correct those errors at no or little cost to the licensee. License agreements should indicate vendor policy on this matter.

Documentation

The first tangible evidence of quality can be noted in the program's documentation. While no amount of documentation can make a poor program into a good one, inadequate documentation can make even the best business software unusable. In the early years of the computer age, documentation for computer software was written largely by programmers for users who were familiar with computer operation, not for the general public. That was adequate until the microcomputer revolution made the general public into microcomputer users. Most small business persons do not have the time, inclination, or need to become experts on computers. For that reason, the documentation of any business software should be carefully examined before purchase. Further, documentation should be clear, concise, and written in plain language.

Documentation should also contain tutorial materials that lead the user through the solution of a sample problem or an exercise. Examples are often more valuable to the beginning program user than the clearest of instructions. If examples are given, they should work. It is amazing how often sample problems listed in software documentation simply do not work when the user tries to run them. Disk operating systems (DOS) change. Microcomputer models change. Instructions valid for one printer and interface combination are not correct for other combinations. The documentation should take these variations into account.

User Friendliness

A software package is said to be user friendly when it is easy to use. A user-friendly program prompts users whenever they make mistakes. It is forgiving of ignorance and mistakes. It does not suddenly abort a run, rudely inform the user that an error has been made, and discard all the data that has been in memory. Programs do all of these things unless the programmer foresees all the possible errors and accounts for them in the development stage. To test for user friendliness, try making a mistake. Do something that is obviously inappropriate. The more user friendly the program, the more likely it is that the computer will correct you.

Another aspect of user friendliness is in the degree to which the program is self-explanatory. VisiCalc is very unforgiving of mistakes; it simply refuses to accept any responses that it does not expect. For example, in the attempt to replicate a row of figures, if the user fails to enter one of a very limited selection of acceptable responses, the program simply returns to the spreadsheet and makes a crude beeping sound. It does not tell the user that a mistake has been made or even hint as to the nature of the mistake. In this sense, it is not very user friendly and the documentation must make up for this shortcoming or the user can experience great frustration.

Reproducibility*

As was pointed out earlier, many software developers prohibit or even physically prevent the user from making duplicate copies of programs. This means that if the user needs to use the software package in more than one place at a time, two copies will need to be purchased. For instance, the small businessperson who plans to use a general accounting package at the office, another copy at home, and even a third copy at the bookkeeper's home, will have to make copies of the program or spend an additional \$400-\$600 for the third copy. (A backup copy is normally provided with each purchase.)

On the other hand, some manufacturers allow users to make additional copies for their own use. This corporate generosity is not required and should certainly not be abused. For persons contemplating purchasing expensive business software, reproducibility might be a determining factor in the decision-making process.

Evaluation Criteria for Instructional Software

Likewise, there are criteria germane to software developed for instructional purposes. The following discussion will aid users in evaluating and selecting instructional software appropriate to their particular needs and resources.

Motivational Incentives

Whereas business software can rely on internally motivated users; the same is certainly not true of instructional software. This category of programs must use an array of attention-getting and motivational devices to maintain user interest. Graphics are essential in quality instructional software. (Color graphics are probably even better.) On the IBM, graphics are simply not possible without the color adapter board; so this can be a problem on microcomputers purchased strictly for business purposes. Beeps, whirring sounds, flashing displays, and moving drawings certainly add to the attractiveness of instructional software.

An additional consideration in this area is the personalization possible with interactive programming. The well-designed, instructional program doesn't just say, "Invalid response"; it says: "I'm sorry, Bob, but that isn't right. Perhaps you should review that part again."

Another important motivational aspect of instructional software lies in the area of error proofing. Because computer instruction is frequently individualized, it is essential that the teacher be able to leave the student with the computer with the confidence that a mistake, either accidental or intentional, will not cause the program to abort.

Finally, the instructional format the program presents may be an influencing factor on a purchaser's decision to buy. Instructional software can take one or any combination of the following forms:

- Drill and practice packages allow the student to repeat a carefully regulated task until the skill is mastered or until proficiency is attained. Examples are the numerous typewriting programs, math drills, and language drills available.

*The term used in computer-users' jargon is "copyability."

- Tutorials present cognitive material, teach concepts, or provide remedial instruction. These often resemble electronic, interactive books.
- Simulations use models to represent other situations. An example of a simulation is the Enterprise Sandwich Shops software package reviewed under Instructional Software Reviews, which sets up a model of a business to teach economic and management concepts, skills, and attitudes. The student makes inputs and receives feedback based on the results of that input.

Documentation

The documentation for instructional software is usually not as detailed as that for business software. Except for some complex simulations, it need not supply such intricate details for the user, because instructional software must be more user friendly than business software. Business software performs a function and the user learns to use it proficiently. The basic purpose of instructional software is to teach something, and any time spent learning to use the package is time lost from the central goal of learning that task, concept, or skill.

For this reason, documentation should be as simple and brief as possible. It must contain all the information required by the student to run the package, and a description of what the package does, but no more. In the case of simulations, particularly very complex ones, sample problems with correct solutions may be supplied. Everything else should be contained in the program itself. It is not unusual for documentation of tutorials to contain only the information needed for a novice to turn on the computer and begin running the program. This is clearly inadequate documentation since it fails to indicate the purpose of the program or its intended audience.

User Friendliness

User friendliness is even more important in instructional software than it is in business software. This is because, as discussed earlier, the user of instructional software is probably a one-time user of a particular package, whereas the user of a business package trains to build proficiency in using a particular package. Just as the documentation for a business package must be very thorough, instructional packages must be very user friendly.

When input is required from the student, it should be requested clearly and in plain language. The student should not have to look up the format or command for the next input. Exceptions to this generalization are possible as in the case of some complex simulations, but in general this is a valid requirement.

Variety in presentation is important also. Any good teacher knows that students learn better when the material is presented in a variety of ways. A sixty-minute lecture or reading session can be deadly in the interest level of any class. By the same token, instructional packages should display a variety of formats. The student should be required to alternate between reading material, studying illustrations, responding to questions, and receiving feedback throughout the program.

Personalization is an important aspect of interactive computer-assisted instruction (CAI). Use of the student's name can be a good motivator. In addition, requiring students to enter their names allows the program to record the results of each student's efforts. Most good interactive CAI packages provide checks of the student's progress by asking questions or presenting problems to

which the learner must respond. By keeping track of the percentage of correct and incorrect responses for each student, the program can provide the instructor with valuable progress reports and at the same time give the learner continual feedback.

Reproducibility

Reproducibility is probably even more important to educators than businesspersons. School budgets are always tight and once funds are allocated, there are usually no more forthcoming. Moreover, the number of students who will be using a package at one time can be very large. For instance, a word processing class may need thirty to fifty copies of a program such as WordStar. At \$495 (as of 12/1/83) per package, thirty copies would be quite expensive. Some software manufacturers allow schools to make additional copies of programs. This consideration must be taken into account when making purchasing decisions for instructional software. Such a corporate policy is quite generous, and instructors should be careful not to violate the conditions of such copying or risk losing the privilege.

Also, many software packages are written in such a way that, once loaded into the machine, the diskette can be removed and the program loaded into more machines. Teachers should be aware that this is a violation of standard software leasing agreements which limit the use of any given diskette to a single machine. Again, some manufacturers allow the use of their packages in multiple machines for schools only. This corporate policy is also very generous and the limitations imposed by the manufacturer should be strictly observed.

Systematic Software Evaluation

Selection of quality software is of prime importance to vocational education curriculum planners. Limited resources mandate systematic software evaluation. A systematic approach to software evaluation ensures that standardized criteria are used in comparing all software packages under purchase consideration.

In response to the need for a systematic approach to evaluating software, the Office of Adult and Vocational Education, U.S. Department of Education, sponsored a study designated to result in a system (instrument and guide) for evaluating courseware (computer instructional programs and support materials) for vocational education. More information about this project may be obtained from the National Center for Research in Vocational Education.

In the absence of a tested evaluation instrument to facilitate evaluation of business software packages, program planners are urged to use some sort of standardized checklist. Sample forms designed by the authors for use in rating business and instructional software are presented in appendix C.

TELECOMMUNICATIONS

For years, airline ticket agents have been able to check seat vacancies and make reservations by directly accessing a central computer. Researchers could turn on their terminals and talk directly with computers in another building or even another city. By the early 1980s, farm management groups, real estate agencies, stock brokers, medical groups, and literally hundreds of other groups had established computer networks for business and recreational use. All that was required was a mainframe computer with communications ports and terminals connected to the central computer by a direct line (more recently a telephone line).

The remote unit used in the above situations is known as a *dumb terminal*. The term *dumb* is applied because the terminal cannot do any of the electronic *thinking* which characterizes a computer. Since these terminals cannot store information to send it in batches, or perform routine computations, all their work involves actual connect time to the mainframe, which means additional cost for computer time and telephone use.

The advent of the microcomputer offers answers to both of these problems. In terms of cost, microcomputers range from \$100 to \$10,000 and an additional \$100 to \$400 will give them telecommunication capabilities. If the small business already has microcomputers, then telecommunications becomes much more affordable. In terms of flexibility, the microcomputer is a thinking computer with all the power of a room-size computer of just a few years ago.

This section deals with the equipment requirements for telecommunications and the implications networking and telecommunicating have for the small business.

SECTION VI

Requirements

The first requirement for telecommunications is a microcomputer capable of accepting and transmitting data through a communications port. For the three computers discussed in this publication, telecommunication capability is a significant feature.

Required hardware consists of a communications interface board (or card) and modem unit. The communications board is used to convert the computer's symbols (ASCII codes expressed in bytes) into a sequential series of impulses (bits) and to direct them to the modem and a telephone. The modem (MODulator/DEModulator) then converts these bits of information to electrical impulses of varying currents that can be transmitted over the telephone line. The receiving modem reconverts the impulses into ASCII codes expressed in bytes and feeds them into its attached microcomputer. The receiving computer reassembles the code into information it can use.

There are two types of modems: the acoustic coupler modem and the direct-connect modem. The acoustic coupler modem generates sounds that are converted to electrical impulses by the telephone and are then carried just like your voice is carried. If you were to listen through the other end, you would hear a series of beeps and clicks. The direct-connect modem does not generate sounds, but generates the impulses directly into the telephone line.

The acoustic coupler modem requires a regular telephone, which rests in a cradle in the modem unit. The direct-connect unit plugs into the telephone jack and requires a standard phone company cord to connect to the modem. Although the acoustic coupler is the older system, the direct-connect has all of the advantages and none of the disadvantages of the acoustic coupler type. It is more reliable, less trouble, and less expensive. Also, by purchasing a double jack outlet for the wall telephone, both telephone and microcomputer can be connected to the same wall jack and used without having to disconnect and reconnect the units.

Selecting a modem can be a complicated matter because a number of good ones are available. Important features to look for include—

- the modem's ability to answer incoming calls so that the phone can be left unattended;
- an adjustable baud rate (this is the rate at which the modem can accept and translate data; both sending and receiving modems must be "talking" at the same rate);
- a modem that can both originate (send) and answer, and
- the capability to download and upload.

Once the modem has been selected, communications software is needed to assist in sending and capturing messages. Some software allows users to take data from the sending computer and save it on their own disks, or to print the incoming information as it is being captured. Some of the large databases have their own software that is necessary in order to utilize their services fully.

Finally, a communications port, or database, is needed to complete the telecommunications process. Although there are hundreds of commercial data bases, there are three that overshadow the telecommunications market (Grossbrenner 1983). As part of their regular services, they provide their customers with access to many other databases. These three databases are—

- The Source, operated by *Reader's Digest*, McLean, Virginia;
- CompuServe, operated as a subsidiary of H&R Block, Columbus, Ohio;
- The Dow Jones News/Retrieval Service (DJNS), owned by Dow Jones, Inc.

In addition, a database vendor that may be of special interest to vocational educators is BRS (Bibliographical Retrieval Services), operated from Latham, New York. This vendor accesses numerous educational resources, for example—

- ERIC (Educational Research Information Center), ERIC Clearinghouse on Adult, Career, and Vocational Education, The National Center for Research in Vocational Education, Columbus, Ohio;
- RIVE (Research in Vocational Education), National Center Clearinghouse, The National Center for Research in Vocational Education, Columbus, Ohio;
- SPIN (School Practices Information Network), BRS, Latham, New York; and
- SPIF (School Practices Information File), BRS, Latham, New York.

Probably the one most important database to the typical small businessperson is Dow Jones News Service (DJNS). A subscription to DJNS puts the user on-line with such publications as the *Wall Street Journal* and *Barron's*; current quotes from the floor of The New York, American, Midwest, and Pacific Stock Exchanges—at the same time the information is available to stockbrokers; *Weekly Economic Survey* from Money Market Services, Inc.; The Media General DataBank that includes more than fifty-eight statistics on each of the 3,200 companies listed; *Wall Street Week*; and *The Academic American Encyclopedia*.

There are also many special purpose databases, for example, medical, legal, accounting, sociology, and library databases. Banking systems, specifically large banks, are beginning to use telecommunications for electronic banking. This will no doubt expand over the next few years.

For further information, "Getting the Best from Data Banks" (Grosswirth 1983, p. 111) provides a listing of on-line commercial databases, and the appendix of *The Complete Handbook of Personal Computer Communications* (Grossbrenner 1983) gives an excellent summary of on-line databases.

Networking Implications

Perhaps the single most important implication of the telecommunications revolution lies in the area of microcomputer networking. Free computer bulletin boards (CBB) are operated by computer software companies, hardware companies, and hobbyists all over the country. All that is needed to get into one of these is a telephone number and a password. An extensive directory of free CBBs is available from (Grossbrenner 1983):

J. A. Cambron Company, Inc.
P.O. Box 10005
Kansas City, MO 64111
(816) 756-1847

Also, an on-line directory is available from Novation, Inc. (Grossbrenner 1983). [Dial (213) 881-6680 and type in CAT when "log on" appears on the screen.]

As more small businesspersons become comfortable with their microcomputers and modems, networks and bulletin boards will develop for this special interest group. As more individuals get home computers with communications capabilities, even small businesses will be able to set up information and direct order computer systems using the same technology currently in use for the CBBs.

Telecommuting

Many workers perform tasks that do not require their presence at a particular location while performing them. Professional writers, computer programmers, consultants, and many small businesspersons could do all or part of their work at home as well as they do at the office. All that is needed are two microcomputers with modems and communications software. Then, the small businessperson whose financial and business records are all stored on hard disk at the office can leave the office computer with the power on and go home. There he or she can use the home computer to pull any of these records, eliminating the necessity of carting all of the office files home or working extra hours at the office.

Further, as long as a telephone line is available, appointment schedules, personnel files, and other business information, whether on hard disk or on the mainframe computer at the office, would be available to the manager or entrepreneur from home, a hotel room, or a vacation site. Writing letters and memos, making inquiries, and handling many routine functions could also be done at these locations. Moreover, telecommuting is not just limited to the manager. Typists could record dictation over the telephone, then use a word processing package at home to prepare a finished copy. A quick phone call between computers and the text is printed at the office for review.

What are some of the overall advantages of telecommuting? Transportation costs are lowered. Commuting time can be spent with the family. Office operating costs for lights, heating or cooling, and janitorial services can be lowered. Child-care costs and clothing costs may be lowered. Work can be done at odd hours and at the worker's convenience.

Indeed, the possibilities and advantages for the "electronic home office" in small businesses are endless.

APPENDICES

APPENDICES

Appendix A

BUSINESS SOFTWARE SOURCES' ADDRESSES

Aardvark Software, Inc.
783 North Water Street
Milwaukee, WI 53202
(414) 289-9988

Accounting Information Systems
9845 Jutland Avenue
Northridge, CA 91325
(213) 349-8349

Action-Research Northwest
11442 Marine View Drive, SW
Seattle, WA 98146
(206) 241-1645

Addison-Wesley Publishing Company Software Marketing
3 Jacob Way
Reading, MA 01867
(617) 944-2700

Advanced Analytical Computer Systems
19301 Ventura Blvd., Suite 203
Tarzana, CA 91356
(213) 708-3917

Advanced Business Technology, Inc.
1233 Saratoga-Sunnyvale Road
Saratoga, CA 95070
(408) 446-2013

Adventure International
Division of Scott Adams, Inc.
736 Commerce Circle
PO Box 3435
Longwood, FL 32750
(305) 330-8194

Agri-Computer Services
101 Broad Street, SE
Aliceville, AL 35442
(205) 373-6383

Alpha Software Corporation
Six New England Park
Burlington, MA 01803
(617) 229-2924

AlphaBit Communications, Inc.
13349 Michigan Avenue
Dearborn, MI 48126
(313) 581-2896

Alphanetics
PO Box 339
Forestville, CA 95436
(707) 887-7237

American Business Systems, Inc.
439 Littleton Road
Westford, MA 01886
(617) 632-2600

American Small Business Computers
118 Mill
Pryor, OR 74361
(918) 825-4844

Analytic Systems
24 Old Kings Highway, S
Darien, CT 06820
(203) 655-7426

Andent, Inc.
1000 North Avenue
Waukegan, IL 60085
(312) 223-5077

Apparat, Inc.
4401 South Tamarac Parkway
Denver, CO 80237
(303) 741-1778

Apple Computer, Inc. 20525 Mariani Avenue Cupertino, CA 95014 (408) 896-1010	Avant-Garde Creations PO Box 30160 Eugene, OR 97403 (503) 345-3043
Applied Operations Research, Inc. 22056 Saticoy Street Canoga Park, CA 91303 (213) 340-1419	BAPS Software 6011 San Felipe Houston, TX 77057 (713) 683-1426
Applied Software Technology 14125 Capri Drive Los Gatos, CA 85030 (408) 370-2662	Basic Business Software, Inc. PO Box 26311 Las Vegas, NV 89126 (702) 876-9493
Arlington Software Systems 97 Bartlett Avenue Arlington, MA 02174 (617) 641-0290	Beauman Porter, Inc. Pleasant Ridge Road Harrison, NY 10528 (914) 967-3504
Artsci, Inc. 5547 Satsuma North Hollywood, CA 91601 (213) 985-2922	Benchmark Creations PO Box 31861 Raleigh, NC 27622 No Listing
Artworx Software Company, Inc. 150 Main Street Fairport, NY 14450 (716) 425-2833 (800) 828-6573	Best Programs 3614 Oval Drive Alexandria, VA 22305 (703) 549-3663
Ashton-Tate 10150 Jefferson Blvd. Culver City, CA 90230 (213) 204-5570	BIO Data 1953 South River Avenue Springfield, MO 65804 (417) 882-6301
ASTEC, Inc. 400 Hillside Avenue Needham, MA 02194 (614) 444-5551	Bluebirds, Inc. 2267 23rd Street Wyandotte, MI 48192 (313) 285-4455
Automated Office Systems 602 Lookout Drive, #213 Richardson, TX 75080 (214) 669-9966	BPJ Systems, Inc. 3423 Gaudalupe Austin, TX 78705 (512) 454-7191
Automation Management, Inc. PO Box 3159 Texas City, TX 77590 (713) 948-3050	Broderbund Software, Inc. 1938 Fourth Street San Rafael, CA 94901 (415) 456-6424

The Business Manager
1420 East Edinger Avenue, Suite 115
Santa Ana, CA 92705
(714) 836-3560

BusinessMaster, Inc.
1207 Elm Avenue, Suite M
Carlsbad, CA 92008
(619) 434-6165
(800) 521-9277

Business and Professional Software, Inc.
143 Benney Street
Cambridge, MA 02142
(617) 491-3377

Business Planning Systems
Two North State Street
Dover, DE 19901
(302) 674-5500

The Business Solutions, Inc.
60 East Main Street
Kings Park L.I., NY 11754
(516) 269-1120

Carey Moeller & Associates
1926 Farwell
San Antonio, TX 78213
(512) 341-6771

C&D Software
Claude Duplissey
Little Rock, AR 72204
(501) 569-3252

CE Software
801 73rd Street
Des Moines, IA 50312
(515) 224-1995

Centec Process Systems
Centec Bldg.
11260 Roger Bacon Drive
Reston, VA 22090
(703) 471-6300

Charles Mann & Associates
Microcomputer Division
55722 Santa Fe Trail
Yucca Valley, CA 92284
(619) 365-9718

C&H Video
110 West Caracao Avenue
Hershey, PA 17033
(717) 533-8480

CMA Microcomputer Division
55722 Santa Fe Trail
Yucca Valley, CA 92284
(619) 365-9718

Commercial Software Systems
7689 West Frost Drive
Littleton, CO 80123
(303) 761-8062

Compumax, Inc.
PO Box 7239
Menlo Park, CA 94025
(415) 854-6700

Compu-Tations, Inc.
PO Box 502
Troy, MI 48099
(313) 689-5059

Computech Group, Inc.
Main Line Industrial Park
Lee Blvd.
Frazer, PA 19355
(215) 644-3344

Computer Aided Design
764 24th Avenue
San Francisco, CA 94121
(415) 387-0263

Computer Consultants
312 Hoyt Street
Dunkirk, NY 14048
(716) 366-0766

Computer Products, Inc.
3225 Danny Park
Metairie, LA 70002
(504) 455-5330

Computer Services
14 Pierce Avenue
Oak Ridge, NJ 07430
No Listing

Computer Shack
1691 Eason
Pontiac, MI 48054
(313) 673-2224

Computer Software International
15 Grand Avenue
Englewood, NJ 07631
(201) 894-0653

Computer Software Design, Inc.
1911 Wright Circle
Anaheim, CA 92806
(714) 634-9012

Computer Systems Design, Inc.
PO Box 735
Yakima, WA 98902
(509) 453-2956

Computer Tax Service
PO Box 7915
Incline Village, NV 89450
(702) 832-1001

Computerized Management Systems
1039 Cadix Drive
Simi Valley, CA 93065
(805) 526-0151

Computers Plus
PO Box 658
Montecello, AZ 71655
(501) 367-5235

Computerware
PO Box 668
Encinitas, CA 92024
(619) 436-3512

Comsen, Inc.
20-A Erford Road
Lemoyne, PA 17043
(717) 737-6971

Comshare Target Software, Inc.
1935 Cliff Valley Way, Suite 200
Atlanta, GA 30329
(404) 634-9535

Comsis Corporation
2685 Marine Way, Bldg. A
Mountain View, CA 94043
(415) 964-5911

Conceptual Instruments Company
4730 Warrington Avenue
Philadelphia, PA 19143
(215) 726-7856

Construction Data Control, Inc.
2000 Weems Road
Tucker, GA 30084
(404) 934-4722

Continental Software Company
11223 South Hindry Avenue
Los Angeles, CA 90045
(213) 417-3003

Contract Service Associates
706 South Euclid
Anaheim, CA 92802
(714) 635-4055

Cornucopia Software
1625 Beverly Place
Berkeley, CA 94707
(415) 524-8098

Countryside Data, Inc.
718 Skyline
Idaho Falls, ID 83402
(208) 529-8576

CPAids, Inc.
1640 Franklin Avenue
Kent, OH 44240
(216) 678-9015

Creative Solutions International
10597 Humbolt Street
Los Alamitos, CA 90720
(213) 493-1446

Cybernetics, Inc.
8041 Newman Avenue, Suite 208
Huntington Beach, CA 92647
(714) 848-1922

Cybernetics Resource Corporation
10 Maple Street
Port Washington, NY 11050
(516) 883-7676

Dale-Data Data Processing Service
5840 Southwest Cheltenham Drive
Portland, OR 97201
(503) 245-8798

Data Automation Service International
2145 N.W. Tenth Street
Gainesville, FL 32601
(904) 372-2367

Data Consulting Associates
18000 Coleman Valley Road
Occidental, CA 95465
(707) 874-3067

Datamensions Corporation
615 Academy Drive
Northbrook, IL 60062
(312) 564-4060

Datasmith, Inc.
PO Box 8036
Shawnee Mission, KS 66208
(913) 381-9118

Data Soft of New Hampshire
22 Stevens Avenue
Merrimack, NH 03054
(603) 424-5217

Data Systems, Inc.
PO Box 6008
Bakersfield, CA 93386
(805) 395-3260

Data Train Service
840 N.W. Sixth Street, Suite 3
Grants Pass, OR
(503) 476-1467

Decision Resources
44 White Birch Road
Weston, CT 06883
(203) 222-1974

Demi-Software
6 Lee Road
Medfield, MA 02052
(617) 359-4502

The Denver Software Company
14100 East Jewell Avenue, Suite 15
Aurora, CO 80012
(303) 750-9980

Desktop Computer Software, Inc.
303 Potrero Street, 29/305
Santa Cruz, CA 95060
(408) 3-9095

Diamond Head Software
2737 Kalakaua Avenue, Suite 28
Honolulu, HI 96815
(808) 922-1113

Digital Marketing Corporation
2670 Cherry Lane
Walnut Creek, CA 94596
(415) 938-2880

Diversified Computer Services
5601 Penn Avenue, A-23
Pittsburgh, PA 15206
(412) 361-7540

Douglas Tam
41-78 Foley Street
Elmhurst, NY 11373
(212) 457-0932

Downeast Digital
RD 1, Box 4130
Ellington, ME 04979
(207) 643-2437

Dynacomp, Inc.
1427 Monroe Avenue
Rochester, NY 14618
(716) 442-8960

Eagle Software Publishers, Inc.
993 Old Eagle School Road, Suite 409
Wayne, PA 19087
(215) 964-8660

Edu-Ware East
PO Box 336
Maynard, MA 01754
(617) 568-8641

Elgen Systems
PO Box 10234
Austin, TX 78766
(512) 837-4665

Ellis Computing Software
3917 Noriega Street
San Francisco, CA 94122
(415) 753-0186

EITech Associates
2466 Moreno Drive
Los Angeles, CA 90039
(213) 663-0347

Emeritus Software Library
5110 East Colfax Avenue, Suite 202
Fresno, CA 93726
(209) 251-3525

Enertronics Research, Inc.
150 North Meramec, Suite 207
St. Louis, MO 63105
(314) 725-5566

Ensign Software
2312 North Cole Road, Suite E
Boise, ID 83704
(208) 378-8086

Enterprise Computer Systems, Inc.
Suite G-15, IBM Building
PO Box 10156
Jacksonville, FL 32207
(904) 399-3896

Executive Data Systems
290 Interstate North, Suite 116
Atlanta, GA 30339
(404) 955-1374

Execuware Microcomputer Software
7415 Pineville-Matthews P
Suite 300, Box 10
Charlotte, NC 28211
(800) 438-3636
(704) 541-1199

Farm Management Group of Mississippi
PO Box 646
McComb, MS 39648
(601) 684-6402

Farmplan Computer Systems, Inc.
PO Box 65
Campbell, CA 95009
(408) 379-3932

FCT, Inc.
12250 Hawthorne Plaza
Hawthorne, CA 90250
(213) 973-2086

Ferox Microsystems, Inc.
1701 North Fort Meyer Dr., 6th Floor
Arlington, VA 22209
(703) 841-0800

Franclier, Inc.
2460 Computer Drive
PO Box 611
Westboro, MA 01581
(617) 366-0950

Flowersoft
564 Tara
Modesto, CA 95336
No Listing

G&L Software Enterprises
2304 North First Street
Upland, CA 91786
No Listing

Galactic Software
11520 North Port Washington Road
Milwaukee, WI 53902
(414) 241-8030

Galaxy, Inc.
Department LP2, PO Box 22072
San Diego, CA 92122
(619) 231-4945

Garfield, Grossed & Postaroff
1101 Chestnut Street
Roselle, NJ 07203
(201) 245-5933

GB Lenz
3231 Vineyard, 42
Pleasanton, CA 94566
(415) 846-8406

GMS Systems, Inc.
12 West 37th Street
New York, NY 10018
(212) 947-3590

Graphic Communications, Inc.
200 Fifth Avenue
Waltham, MA 02254
(617) 890-8778

Graphic Software, Inc.
PO Box 367
Kenmore Station
Boston, MA 02215
(617) 491-2434

Great Plains Software
123 15th Street
North Fargo, ND 58102
(701) 293-8483

Gregg/McGraw-Hill
1221 Avenue of the Americas
New York, NY 10020
(212) 997-1221

H&E Communications, Inc.
50 North Pascack Road
Spring Valley, NY 10577
(914) 425-1535

H&H Trading Company
PO Box 549
Clayton, CA 94517
(415) 672-3233

Harris Technology Systems, Inc.
PO Box 80837
624 Peach Street
Lincoln, NE 68501
(402) 476-2811

Hayden Book Company
50 Essex Street
New Rochelle Park, NJ 07662
(201) 843-0550
(800) 631-0856

Hayden Software Company
600 Suffolk Street
Lowell, MA 01853
(800) 343-1218
(617) 937-0200

Heigen Corporation
2201 Pacific Avenue, Suite 401
San Francisco, CA 94115
(415) 929-7443

Hexagon Systems
PO Box 397, Station A
Vancouver, BC
Canada V6C 2N2
(604) 682-7646

High Technology Software Products, Inc.
PO Box 60406
1611 N.W. 23rd Street
Oklahoma City, OK 73146
(405) 524-4359

Highlands Computer Services
14422 S.E. 132nd Street
Renton, WA 98056
(206) 228-6691

Holland Automation USA, Inc.
3400-D, West MacArthur Blvd.
Santa Ana, CA 92704
(714) 647-2844

Holman Data Processing Service
2059 West Lincoln
Oroville, CA 95965
(916) 533-5992

Houghton Mifflin Company
One Beacon Street
Boston, MA 02108
(617) 725-5526

Howard Software Services
8008 Girard Avenue, Suite 310
La Jolla, CA 92037
(619) 454-0121

Howe Software
14 Lexington Road
New City, NY 10956
(914) 634-1821

IBM Corporation
Software Publishing Division
PO Box 1328, Dept. 2C6/232-2
Boca Raton, FL 33432
(305) 998-1727

ICR/Futuresoft
PO Box 1446
Orange Park, FL 32073
(904) 269-1918

Image Computer Production, Inc.
515 Academy Drive
Northbrook, IL 60062
(312) 564-5050

Information Solutions, Inc.
Software Division
PO Box 198
Charlottesville, VA 22902
(800) 268-3522

Information Unlimited Software
2401 Marinship Way
Causalito, CA 94965
(415) 331-6700

Infosoft, Inc.
80 Washington Street
PO Box 640
Norwalk, CT 06856
(203) 866-8833

Innovative Software, Inc.
9300 West 110th Street
Bldg. 55, Suite 380
Overland Park, KS 66210
(913) 888-0154

Instant Software
Petersborough, NM 03458
(603) 924-9271

Institute for Scientific Analysis
PO Box 7186
Wilmington, DE 19803
(215) 358-3735

Integrity Systems, Inc.
4812 Interstate Drive
Cincinnati, OH 45246
(513) 874-8100

International Computer Products
346 North Western Avenue
Los Angeles, CA 90004
(213) 462-8381

International Micro Systems, Inc.
6445 Metcalf
Shawnee Mission, KS 66202
(913) 677-1137

International Software Marketing, Ltd.
120 East Washington Street, Suite 421
Syracuse, NY 13202
(315) 474-3400

Isaac Software
841 West Nebraska Avenue
St. Paul, MN 55117
No Listing

J. Michael Healy
137 Citation Court
Birmingham, AL 35209
(205) 942-6740

Jack Strick & Associates
949 South Southlake Drive
Hollywood, FL 33019
(305) 925-7034

Joe Agiella
1226 N.W. Fourth Avenue
Fort Lauderdale, FL 33311
(305) 525-1192

Johnson Associates
PO Box 3069
1570 Hartwell Avenue
Redding, CA 96049
(916) 221-0740

Long Island Microwave, Ltd.
1 Third Avenue
New York, NY 10022
(212) 486-7707

Kleinhammer
PO Box 1665
Morro Bay, CA 93442
(805) 772-2766

KSoft
845 Wellner Road
Naperville, IL 60546
(312) 961-1250
and
318 Lakeside Drive
Bridgeton, MS 39042
(601) 492-2239

Libra Laboratories
495 Main Street
Metuchen, NJ 08810
(201) 494-2224

Lifeboat Associates
1651 Third Avenue
New York, NY 10028
(212) 860-0300

Tree Software, Inc.
Webster Street
Suite 342
Monterey, CA 93940
(408) 373-4718

Link Systems
1640 19th Street
Santa Monica, CA 90404
(213) 453-1851

Lizcon Computer Systems
1140 Brickyard Road
Salt Lake City, UT 84106
(801) 467-0702 or 484-8179

EJK Enterprises, Inc.
785 Big Bend Blvd.
St. Louis, MO 63119
(314) 962-1855

Lotus Development Company
55 Wheeler Street
Cambridge, MA 02138
(800) 343-5414
(617) 492-7870

Management Systems Software
5200 Brittany Drive, #1006
St. Petersburg, FL 33715
(813) 864-4347

Manhattan Software
PO Box 1063
Woodland Hills, CA 91365
(213) 453-6513

Marathon Microsystems, Inc.
2610 Grant Street
Evanston, IL 60201
(312) 864-6289

Marc Fogg Software
2550 Webster Street
San Francisco, CA 91786
No Listing

Mark of the Unicorn, Inc.
222 Third Street
Cambridge, MA 02139
(517) 571-2760

Market Power
11780 Rough & Ready Road
Rough & Ready, CA 95975
(916) 432-1200

Masterworks Software, Inc.
25834 Narbonne Avenue
Compton, CA 90717
(213) 539-7486

Mayday Software
PO Box 66
Phillips, WI 54550
(715) 339-3976

MECC
2520 Broadway Drive
St. Paul, MN 55113
(612) 638-0683

Medical Software Consortium
502 Springmont Drive
Hopkinsville, KY 42240
(502) 886-0208

Mendocino Software
PO Box 1564
Willits, CA 95490
(707) 459-9130

Metamorphics, Inc.
154 Montgomery Avenue
Bala Cynwyd, PA 19004
(215) 658-9000

Metasoft Corporation
711 East Cottonwood Lane, Suite E
Casa Grande, AZ 85222
(602) 951-0003

Micro Applications Group
7300 Caldais Avenue
Van Nuys, CA 91406
(213) 891-3076

Micro Architect, Inc.
96 Dothan Street
Arlington, MA 02174
(517) 643-4713

Micro Associates, Inc.
Suite 510, 2300 Highway 365
Nederland, TX 77627
(713) 724-6580

Microbase Software, Inc.
PO Box 40353
Indianapolis, IN 46240
(317) 877-4304

Micro Business Software, Inc.
Willow Hill Bldg
Dover Road
Chichester, NH 03263
(603) 798-5700

Microcode
683 Oak Street
Columbus, Ohio 43215
(614) 221-8777

Microcomputer Sales Corporation
PO Box 53376
223 Fairway Drive
Fayetteville, NC 28305
(919) 483-2003

Microcomputer Tax Systems, Inc.
22458 Ventura Blvd., Suite F
Woodland Hills, CA 91364
(213) 704-7800

Microcon Digital Systems, Inc.
115 West Walnut Street
Kokomo, IN 46901
(317) 457-6623

Micro Control Systems, Inc.
431 Vineyard Point Road
Guilford, CT 06437
(203) 643-4897

Micro Data Business Forms
5707 Lacey Blvd., #4
Olympia, WA 98503
(206) 459-3300

MicroLab
2310 Skokie Valley Road
Highland Park, IL 60035
(312) 433-7550

Micro LearningWare
Highway 66 South, PO Box 307
Mankato, MN 56002-0307
(507) 626-2205

Micromatic Programming Company
PO Box 158
Georgetown, CT 06829
(203) 324-3009

Micro Mike's, Inc.
3015 Plains Blvd.
PO Box 1440
Amarillo, TX 79102
(806) 372-3633

MicroPro International Corporation
33 San Pablo Avenue
San Rafael, CA 94903
(415) 499-1200

MicroSoft Consumer Products
10700 Northup Way
Bellevue, WA 98004
(206) 828-8080

MicroSystems Software, Inc.
4301-18 Oak Circle
Boca Raton, FL 33431
(305) 983-9027

Miller Microcomputer Services
61 Lake Shore Road
Natick, MA 01760
(617) 653-6136

MPSI
2481 Bayshore Road, Suite 540
Palo Alto, CA 94303
(415) 856-6382

Muse Software
347 North Charles Street
Baltimore, MD 21201
(301) 659-7212

NF Systems, Ltd.
PO Box 76363
Atlanta, GA 30358
(404) 252-3300

National Software Marketing Company
PO Box 6195
4701 McKinley Street
Hollywood, FL 33021
(305) 961-4888

Nehring
PO Box 61152
Sunnyvale, CA 94088
(408) 981-2558

Neviris Microsystems, Inc.
210 Fifth Avenue
New York, NY 10010
(212) 807-7033

Novell Data Systems Corporation
3400 Wilshire Blvd.
Los Angeles, CA 90010
(213) 258-1653

Northwest Analytical Company
1532 S.W. Morrison Street
PO Box 14430
Portland, OR 97205
(503) 224-7727

Hi-Squared Computing
5318 Forest Ridge Road
Silverton, OR 97381
(503) 873-5906

Orion Business Systems
147 Main
Ossining, NY 10562
(914) 762-5626

Transpholcs
Whistle Stop Mall
PO Box 59
Rockport, MA 01966
(617) 546-3104

PBC Data Systems, Inc.
PO Box 6008
Bakersfield, CA 93386
(805) 395-3231

PBL Corporation
PO Box 559
Wayzata, MN 55391
(612) 471-7644

PCB Systems, Inc.
PO Box 143, Penn Yan
New York, NY 14527
(315) 536-3734

PCEZ Business Software
1852 Green Bay Road
Highland Park, IL 60035
(312) 432-1116

Peachtree Software, Inc.
3445 Peachtree Road, NE
Atlanta, GA 30326
(404) 262-2376

Perfect Software, Inc.
702 Harrison Street
Berkeley, CA 94710
(415) 974-6661

Peripheral Visions
5285 Elam Young Parkway
B400
Hillsboro, OR 97123
(503) 640-1317

Phoenix
64 Lake Zurich Drive
Lake Zurich, IL 60047
(312) 438-4850

The Pillsbury Company
3286 Pillsbury Center
Minneapolis, MN 55402
(612) 330-4966

Pocket Information Corporation
PO Box 152
Beaverton, OR 97075
(503) 649-8145

Precision Prototypes
410 East Roca
Refugio, TX 78377
(512) 526-4758

Professional Medical Software, Inc.
3804 Foothill Blvd.
La Crescenta, CA 91214
(213) 248-2884

Professional Software Technology
51 Franklin Street
Needham, MA 02194
(800) 343-4074

ProSoft
PO Box 560
North Hollywood, CA 91603
(213) 763-3131

Quick Software
2000 Reseda Blvd., #105
Reseda, CA 91335
(213) 341-0599

Quick Tax, Ltd.
319 Clawson Street
Staten Island, NY 10306
(212) 351-6433

Radio Shack
1500 One Tandy Center
Fort Worth, TX 76102
(817) 390-3832

Rainbow Enterprises
7-480A 1 Street
Elmendorf AFB, AK
(907) 753-2291

Realty Software Co.
1116 8th Street, E
Manhattan Beach, CA 90266
(213) 372-9413

Red Wing Business Systems, Inc.
PO Box 19
610 Main Street
Red Wing, MN 55066
(612) 388-1106

Relational Systems International Corp.
5003 Commercial Street, SE
Salem, OR 97309
(503) 363-8929

Rocky Mountain Software Systems
1280 C Newell Avenue, Suite 147-L1
Walnut Creek, CA 94596
(415) 680-8378
(800) 832-2244

Rotary File
PO Box 102-A
Eagle Road
Newton, PA 18940
(215) 968-2533

Sapana Micro Software
PO Box 748
Quincy, IL 62301
(217) 224-4337

Satori Software
5507 North Woodlawn
Seattle, WA 98103
(206) 633-1469

Scorpion Systems
120 North Court Street
Frederick, MD 21701
(301) 663-0539

Scripps Data Systems, Inc.
Suite 202-G
9747 Business Spark Avenue
San Diego, CA 92131
(714) 695-1540

Sensible Software
6619 Perham Drive
West Bloomfield, MI 48033
(313) 855-6112

Serendipity Systems, Inc.
419 Seneca Street
Ithaca, NY 14850
(518) 277-4889

Sierra-On-Line, Inc.
36575 Mudge Ranch Road
Coarsegold, CA 93617
(209) 683-6858

Silicon Valley Systems
1625 El Camino Real, #4
Belmont, CA 94002
(415) 593-1344

Simplified Software Systems
118 Third Avenue, NW
PO Box 1192
Hickory, NC 28601
(704) 328-2389

SimSoft Associates
1258 17th Street
Marshall, MI 48040
(313) 364-7241

Simutek Computer Products, Inc.
4877 East Speedway
Tucson, AZ 85712
(602) 323-9301
(800) 528-1149

Small Business Systems Group
6 Carlisle Road
Westford, MA 01886
(617) 692-3800

Smith Micro Software
PO Box 604
Sunset Beach, CA 90742
(213) 592-1032

Snappware, Inc.
3719 Mantell
Cincinnati, OH 45236
(513) 891-4496

Sof/Sys, Inc.
4306 Upton Avenue, S
Minneapolis, MN 55410-1589
(612) 929-7104

Soft Sector Marketing, Inc.
6250 Middlebelt
Garden City, MI 48135
(313) 425-4020

Sofstar, Inc.
13933 US 1, Juno Square
Julio Beach, FL 33408
(305) 677-5511

Softrend, Inc.
PO Box 1462
Charlottesville, VA 22902
(804) 979-0104

Software Dimensions, Inc.
6341 Auburn Blvd.
Citrus Heights, CA 95610
(916) 722-8000

Software Laboratories, Inc.
3924 Riverside Drive
Dublin, OH 43017
(614) 889-5083

Software Options, Inc.
PO Box 970
19 Rector Street
New York, NY 10006
(212) 725-8235

Software Publishing Corporation
1901 Landings Drive
Mountain View, CA 94043
(415) 962-8910

Software Resources, Inc.
186 Alewife Brook Parkway, Suite 310
Cambridge, MA 02138
(617) 497-5900

Software Solutions
9124 Highway 17
Scotts Valley, CA 95066
(408) 438-2433

Software Technology for Computers
430A Main Street
Watertown, MA 02172
(617) 923-4334

Software Terminal
223 Fairway Drive
Fayetteville, NC 28303
(919) 483-2003

Software Works
1032 Elwell Court, Suite 210
Palo Alto, CA 94303
(415) 960-1800

Sorcim Corporation
2310 Lundy Avenue
San Jose, CA 95131
(408) 942-1727

Southfork Software, Inc.
68 Fairlake Drive
Hattiesburg, MS 39401
(601) 545-1680

SouthWest EdPsych Services, Inc.
PO Box 1870
Phoenix, AZ 85001
(602) 253-6528

South-Western Publishing Company
101 Madison Road
Cincinnati, OH 45227
(513) 271-0970

Spectrum Software
142 Carlow
Sunnyvale, CA 94087
(408) 738-4387

SRA Software
Science Research Associates, Inc.
155 North Wacker Drive
Chicago, IL 60606
(312) 984-7000

SSR Computer Corporation
1600 1/2 Avenue
Rockville, MD 20806
(710) 234-3200

Star Computer Systems, Inc.
18051 Crenshaw Blvd., Suite D
Torrance, CA 90504
(213) 538-2511

Starside Engineering
PO Box 8306
Rochester, NY 14618
No Listing

Starsoft, Inc.
4984 El Camino Road
Suite 125
Los Altos, CA 94022
(415) 965-8000

Starware
3901 Davis Place, NW
Washington, DC 20007
(202) 456-7351

State of the Art, Inc.
3183-A Airway Avenue
Costa Mesa, CA 92626
(714) 850-0111

Stoneware Microcomputer Products
50 Belvedere Street
San Rafael, CA 94901
(415) 454-6500

Strategic Simulations
465 Fairchild, Suite 108
Mountain View, CA 94043
(415) 964-1353

Stull
12314 Old Mill Road
Fairfax, VA 22033
(703) 522-1146

Sue's Management Consultants
315 Courtview Drive
Pacific Palisades, CA 90272
(213) 454-8030

Summerville Enterprises
Agri-Computer Service
104 Railroad Street, SE
Aliceville, AL 35542
(205) 373-6383

Synapse Video
5221 Central Avenue
Richmond, CA 94804
(415) 527-7751

Synergistic Software
5221 120th Avenue, SE
Bellevue, WA 98006
(206) 226-3215

Syntax Corporation
4500 West 77nd Terrace
PO Box 8137
Prairie Village, KS 66208
(913) 362-9667

Syscon
3040 Scott Blvd.
Sunnyvale, CA 95050
(408) 727-2751

System Design Lab Software
2612 Artesia Blvd., Suite B
Redondo Beach, CA 90278
(213) 374-4471

Systemics, Inc.
3050 Spring Street
West Bloomfield, MI 48033
(313) 851-2504

T3I Consulting, Inc.
2626 South Loop, Suite 400
Houston, TX 77054
(713) 661-9001

TCI Software
6107 West Mill Road
Flourtown, PA 19031
(215) 836-1406

TCS Software, Inc.
PO Box 47550
Atlanta, GA 30362
(404) 455-6162

Teaching Assistant
22 Seward Drive
Huntington Station, NY 11746
(516) 226-0534

Techland Systems, Inc.
25 Waterside Plaza
New York, NY 10010
(212) 684-7788

Tecmar, Inc.
6225 Cochran Road
Cleveland, OH 44139
(216) 349-0500

Telephone Software Connection
PO Box 6548
Torrance, CA 90504
(213) 516-9430

Tetrau Computer Applications
740 Nicola Street
Vancouver, BC V6G 2C2
(604) 685-2295

TexaSoft
1028 North Madison Avenue
Dallas, Texas 75208
(214) 941-8475

Time Management Software
PO Box 727
Cushing, OK 74023
(918) 225-6340

TLB Consulting, Inc.
1120 Commerce Parkway
PO Box 414
Findlay, OH 45332
(419) 424-0422

TMQ Software
82 Fox Hill Drive
Buffalo Grove, IL 60090
(312) 520-4440

Tomar Productions
PO Box 740871
Dallas, TX 752374
(214) 363-3059

United Software of America
750 Third Avenue
New York, NY 10017
(212) 682-0347

Univar International
10327 Lambert International Airport
St. Louis, MO 63145
(314) 426-1099

Universal Data Research, Inc.
2437 Wehrle Drive
Buffalo, NY 14221
(716) 631-3011

Utilities Engineering
213 19th Street
PO Box 299
Brigantine, NJ 08203
(609) 266-1774

Venturcom, Inc.
139 Main Street
Cambridge, MA 02142
(617) 661-1230

Verbatim Software Company
7000 Broadway, #104
Denver, CO 80221
(303) 420-5090

Versa Computing, Inc.
3341 Cal Conejo Road, Suite 104
Westlake Village, CA 91362
(800) 358-9999
(800) 862-4599

Virtual Combinatics
PO Box 755
Rockport, MA 01966
(617) 546-6553

VisiCorp
2895 Zanker Road
San Jose, CA 95134
(408) 946-9000

Westico, Inc.
325 Van Zant Street
Norwalk, CT 06855
(203) 853-6880

Westware Software, Inc.
2455 West Fourth Avenue, S
Ontario, OR 97914
(503) 881-1477

Whelan Associates,
Gwyneidd Plaza
PO Box 650
Spring House, PA 19477
(215) 643-7470

Wilson Jones Company
243 Park Avenue
New York, NY 19167
(212) 475-6900

WIMS Computer Consulting
6723 66th Place
Tulsa, OK 74171
(918) 492-9036

Ziggurat Software
PO Box 453
Arlington Heights, IL 60006
(312) 253-5350

Appendix B

ADDITIONAL RESOURCES

Journals

Business Computer System
Cohners Publishing
221 Columbus Avenue
Boston, MA 02216
(Published Monthly—\$35.00 Yearly)

Business Software
MIS, Inc.
3542 Northeast Broadway
Portland, OR 97232
(Published Biannually—\$18.00 Yearly)

BYTE
BYTE Subscriber Service
McGraw-Hill, Inc.
PO Box 328
Hancock, NH 03449
(Published Monthly—\$21.00 Yearly)

Compute
Small System Services, Inc.
PO Box 5406
Greensboro, NC 27405
(Published Monthly—\$20.00 Yearly)

ComputerWorld
PO Box 880
Framingham, MA 01701
(Published Weekly—\$39.00 Yearly)

Creative Computing
PO Box 5214
Boulder, CO 80321
(Published Monthly—\$24.37 Yearly)

Desktop Computing
Wayne Green, Inc.
PO Box 917
Farmingdale, NY 11737
(Published Monthly—\$24.97 Yearly)

80 Micro
PO Box 981
Farmingdale, NY 11737
(Published Monthly—\$25.00 Yearly)

ICP Software Business Review
9000 Keystone Crossing
PO Box 40946
Indianapolis, IN 46240
(Published Quarterly—Free)

InCider
Wayne Green, Inc.
PO Box 911
Farmingdale, NY 11737
(Published Monthly—\$25.00 Yearly)

InfoWorld
375 Cochituate Road, Box 880
Framingham, MA 01701
(Published Weekly—\$31.00 Yearly)

Interface Age
15704 Marguardt Avenue
Cerritos, CA 90701
(Published Monthly—\$21.00 Yearly)

Microcomputing
Wayne Green, Inc.
80 Pine Street
Petersborough, NH 03458
(Published Monthly—\$25.00 Yearly)

Microsystems
CN 1987
Morristown, NJ 07960
(Published Monthly—\$26.97 Yearly)

Mini-Micro Systems
270 St. Paul Street
Denver, CO 80206
(Free)

Nibble
Box 325
Lincoln, MA 01773
(Published Monthly—\$36.50 Yearly)

PC Tech Journal
PO Box 598
Morris Plains, NJ 07950
(Published Bimonthly—\$24.37 Yearly)

PC The Independent Guide to IBM Personal Computers
Ziff-Davis Publishing Company
One Park Avenue
New York, NY 10016
(Published Monthly—\$26.97 Yearly)

PC World
PC World Communications, Inc.
55 DeHoro Street
San Francisco, CA 94107
(Published Monthly—\$24.00 Yearly)

Peelings II
PO Box 188
Las Cruces, NM 88004
(Nine issues Annually—\$21.00 Yearly)

Personal Computer Age
Crone-Reasoner Corporation
16057 Commerce Avenue
Tujunga, CA 91042
(Published Monthly—\$18.00 Yearly)

Personal Computing
Hayden Publishing Company
50 Essex Street
Rochelle Park, NJ 07662
(Published Monthly—\$18.00 Yearly)

Personal Software Magazine
Hayden Publishing Company
50 Essex Street
Rochelle Park, NJ 07662
(Published Monthly—\$24.00 Yearly)

Popular Computing
McGraw-Hill, Inc.
Subscriber Service
PO Box 328
Hancock, NH 03449
(Published Monthly—\$15.00 Yearly)

Small Business Computers
Creative Computing
CN 1988
Morristown, NJ 07960
(Published Monthly—\$19.97 Yearly)

Softside
Softside Publications, Inc.
10 Northern Blvd.
Amherst, NH 03031
(Published Monthly—\$30.00 Yearly)

Softalk
PO Box 60
North Hollywood, CA 91603
(Published Monthly—\$24.00 Yearly)

The Portable Companion
The Osborne Computer Corporation
26500 Corporate Avenue
Hayward, CA 94545
(Published Bimonthly—\$12.50 Yearly)

TRS-80 Microcomputer News
Radio Shack Corporation
1300 One Landry Center
Fort Worth, TX 76101
(Published Monthly—\$18.00 Yearly)

Appendix C
SOFTWARE EVALUATION AND RATING FORMS

MICROCOMPUTER BUSINESS SOFTWARE EVALUATION

Package Title _____

Version _____ Price _____

Functional Area _____

Specific Tasks Performed _____

Vendor & Address _____ Phone _____

Hardware Requirements _____

Medium 5 1/2" disk _____ 8" disk _____ Cassette _____ Other _____
(specify)

Other Software Required _____

Package/Single Program _____

Compatible with _____

Part of Integrated Series _____

Copy Policy/Reproducibility (Copyability) _____

MICROCOMPUTER BUSINESS SOFTWARE RATING FORM

Rating Scale: 1 - 10, with 10 being the highest

Documentation:

1. Clear & unambiguous
2. Consistent with hardware
3. Defines technical terms
4. Contains tutorial section
5. Provides examples that work
6. Completely explains all functions
7. Instructions produce expected results

User Friendliness:

1. Commands simple & easy to remember
2. Adequately prompts user for input
3. Corrections are easy to make
4. Menus are unambiguous
5. User can escape program at any point
6. Help menu is adequate
7. Program catches most errors

Content:

1. Program performs accurately (i.e., gives correct answers)
2. Output is simple to interpret
3. Program performs reliably (i.e., gives correct answers)
4. Uses procedures consistent with your business operation

TOTAL SCORE: _____

Critical Problem Areas _____

Unusual Strengths _____

Recommendation (check one): I recommend purchase of this package.

I do not recommend purchasing this package.

Reviewer Name _____ Date _____

MICROCOMPUTER INSTRUCTIONAL SOFTWARE EVALUATION

Package Title _____

Version _____ Price _____

Subject _____ Grade Level _____

Specific Skills/Concepts Taught _____

Vendor & Address _____ Phone _____

Hardware Requirements _____

Medium 5 1/4" disk _____ 8" disk _____ Cassette _____ Other _____
(specify)

Other Software Required _____

Package/Single Program _____

Compatible with _____

Part of Integrated Series _____

Copy Policy/Reproducibility (Copyability) _____

Instructional Purpose (check all that apply):

Remediation _____

Regular Instruction _____

Enrichment _____

Instructional Technique (check all that apply):

Drill & Practice _____

Tutorial _____

Simulation _____

MICROCOMPUTER INSTRUCTIONAL SOFTWARE RATING FORM

Rating Scale: 1 - 10, with 10 being the highest; use NA when not applicable

Documentation:

1. Clear & Unambiguous
2. Consistent with hardware
3. Defines technical terms
4. Contains sample problems with solutions

User Friendliness:

1. Commands simple & easy to remember
2. Adequately prompts user for input
3. Corrections are easy to make
4. Menus are unambiguous
5. User can escape program at any point
6. Provision made for review or back up
7. Help menu is adequate
8. Program catches most errors

Content:

1. Content is accurate
2. Content is complete
3. Performance objectives are given
4. Content has educational value
5. Material is logically arranged
6. Quiz administered, scored, and recorded
7. Reading level is appropriate

Presentation:

1. Illustrations appropriate/attractive
2. Sound effects are appropriately used
3. The screen is used effectively
4. Old material is removed prior to new material being displayed
5. No unnecessary delays are built in
6. Periodic progress checks are included
7. Student is recycled through material when progress is not satisfactory

TOTAL SCORE: _____

Critical Problem Areas _____

Unusual Strengths _____

Recommendation (check one): I recommend purchase of this package.
 I do not recommend purchasing this package.

Reviewer Name _____ Date _____

REFERENCES

Copley, John W. *Should Your Business Computerize?* Action Report and Special Edition. Richmond, VA: Metro Chamber Small Business Council, May, 1983.

Freeland, James R. "Can a Personal Computer Really Help You?" *Business Horizons* 26, no. 1 (January-February 1983): 56-63.

Friedrich, Otto. "Machine of the Year—The Computer Moves In." *Time*, 3 January 1983, pp. 14-23.

Grossbrenner, Alfred. *The Complete Handbook of Personal Computer Communications*. New York: St. Martin's Press, 1983.

Grosswirth, Marvin. "Getting the Best from Data Banks." *Personal Computing* 7, no. 5 (May 1983): 111.

Harris, E. Edward. "The Face of the Future Marketing." *VocEd* 57, no. 1 (January-February 1982): 37-82.

"PC Survey." *Modern Office Procedures* 28, no. 8 (August 1983): 76.

"Shopper's Guide—Rates and Information." *Today, the Videotex/Computer Magazine* 2, no. 9 (August 1983): 48.

Software Directory, Yellow Pages to the World of Microcomputers. 7th ed. Fairfax, VA: PC Clearinghouse, 1983.

Velt, Stanley S. *Using Microcomputers in Business: A Guide for the Perplexed*. 2d ed. New Rochelle Park, NJ: Hayden Book Company, 1983.

BIBLIOGRAPHY

Books and Journal Articles

Applications of Micro/Mini Computers to Small Business in a Rural Area. Final Report. Ranger, TX: Ranger Junior College, 1981.

Barden, Jr., William. *Microcomputers For Business Applications.* Indianapolis, IN: Howard W. Sams and Company, 1982.

Bell, D. H. *The VisiCalc Book.* Reston, VA: Reston Publishing, 1982.

Becar, Gary. *Computers for Small Business.* Santa Barbara, CA: LaCumbre Publishing, 1983.

Bernbaum, Mark, and Sickman, John. *How to Choose Your Small Business Computer.* Reading, MA: Addison-Wesley Publishing, 1983.

Besant, C. B. *Computer Aided Design and Manufacture.* 2d ed. New York: Ellis Horwood Limited, Division of John Wiley and Sons, 1983.

Blumenthal, Susan. *Understanding and Buying a Small Business Computer.* Indianapolis, IN: Howard W. Sams and Company, 1982.

Brooner, E. G. *Basic Business Software.* Indianapolis, IN: Howard W. Sams and Company, 1981.

Brooner, E. G. *Microcomputer Data-Base Management.* Indianapolis, IN: Howard W. Sams and Company, 1982.

Captain, Sue W. "A Literature Search in Two Parts." Paper written for partial fulfillment of requirements for EDVT, Virginia Polytechnic Institute and State University, 1982.

Cohen, Jules A. *How to Computerize Your Small Business.* Englewood Cliffs, NJ: Prentice-Hall, 1980.

"Fastalk." *Softalk* 3, no. 9 (May 1983): 10-32.

"Fastalk." *Softalk* 3, no. 12 (August 1983): 11-30.

"Fastalk." *Softalk* 4, no. 1 (September 1983): 11-31.

Funkhouser, Robert. *IBM Basic for Business and Home.* Reston, VA: Reston Publishing and Prentice-Hall, 1983.

Grillo, John P., and Robertson, J. D. *Data and File Management for the IBM PC.* Dubuque, IA: William C. Brown, 1983.

Howard, Phillip C., ed. *Computer Literature Index*. Phoenix, AZ: Applied Computer Research, 1981.

"Instructionals." *Business Software* 1, no. 4 (July/August 1983): 31-39.

Jong, Steven F. *Word Processing for Small Businesses*. Indianapolis, IN: Howard W. Sams and Company, 1983.

Kelly, James, E., Jr. *The IBM/PC and Business Software, WordStar, VisiCalc, dBase II*. Wayne, PA: Banbury Books, 1983.

Kleiner, Art. "How a Computer Network Changed My Life." *Home Electronics and Entertainment* 1, no. 4 (August 1983): 45-48.

Lewis, Jack R., Jr. *An Evaluation of Microcomputer Software for Vocational Education Programs*. Education Innovation and Support Project conducted under Title IV-C of the Elementary and Secondary Education Act. Danville, VA: Danville Public Schools, 1983.

Lewis, Ted G. *The TRS-80 Meets Business*. New York, NY: John Wiley and Sons, 1982.

McWilliam, Peter A. *The Personal Computer in Business Book*. Englewood Cliffs, NJ: Prentice-Hall, 1980.

Parker, Alan J. *Basic for Business for the IBM Personal Computer*. Reston, VA: Reston Publishing, 1983.

Parker, Alan J. *TRS-80 Disk Basic for Business Model II and Model III*. Reston, VA: Reston Publishing, 1982.

Parker, Alan J., and Stewart, John. *Apple Basic for Business for Apple II*. Reston, VA: Reston Publishing, 1981.

Pratt, Swain. "Micro Software Digest." *Microcomputing* 7, no. 6 (June 1983): 56-58.

Randall, R. D. *Microcomputers in Small Business*. Englewood Cliffs, NJ: Prentice-Hall, 1982.

Render, Robert, M. *A Practical Guide to Small Computers for Business and Professional Use*. Rev. ed. New York: Monarch Press, 1983.

Sikorowicz, Walter. *The Complete Book of Word Processing and Business Graphics*. New York: Micro Text Publishing, 1982.

Struble, George. *Business Information Processing With Basic*. Reading, MA: Addison-Wesley Publishing, 1980.

Summer, Stanley R. *Doing Business With Super Calc*. Berkeley, CA: Sybex, 1983.

Willis, J., and Miller, M. *Computers for Everybody*. 2d ed. Beaverton, OR: Dilithium Press, 1983.

Zahniser, Gale; Long, J. P.; and Nasman, E. D. *Microcomputers in Vocational Education: Current and Future Uses*. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1983.

Business Programs

Barden, William. *Business Programming Applications*. Fort Worth, TX: Radio Shack Division-Tandy Corporation, 1982.

Poole, Lon; Borchers, Mary; and Castlewitz, David M. *Some Common Basic Programs—Apple II Edition*. Berkley, CA: Osborne/McGrawHill, 1981.

Poole, Lon, and Wilson, David. *Practical Basic Business Programs-IBM/PC Edition*. Berkley, CA: Osborne/McGraw-Hill, 1982.

Sternberg, Charles D. B. *Basic Computer Programs for Business*. Vol. 1. New Rochelle Park, NJ: Hayden Book Company, 1980.

Sternberg, Charles D. *Basic Computer Programs for Business*. Vol. 2. New Rochelle Park, NJ: Hayden Book Company, 1982.

Zimmerman, S. M., and Conrad, L. M. *Business Application for the IBM Personal Computer*. Bowie, MD: Robert J. Brady Company and Prentice-Hall, 1983.

Software Directories and Guides

"A Buyer's Guide to Business Graphics Software." *Personal Computing* 7, no. 7 (July 1983): 114-115.

A Concise Guide to Microcomputer Software. Hancock, NH: McGraw-Hill, 1983.

Alves, J. R.; Curtin, D. P.; and Briggs, A. K. *Planning and Budgeting for Higher Profits—An Apple Business Users Guide*. Somerville, MA: Curtin and London, 1983.

Alves, J. R.; Curtin, D. P.; and Briggs, A. K. *Planning and Budgeting for Higher Profits—An IBM PC Business Users Guide*. Somerville, MA: Curtin and London, 1983.

Apple Computer Software 1983; edited by Jeffrey Stanton, R. P. Well, and S. Rochowansky. Los Angeles, CA: Addison-Wesley Publishing, 1983.

Barden, William, Jr. *Business Program Applications Guide for Radio Shack*. Fort Worth, TX: Radio Shack Division, Tandy Corporation, 1982.

The Blue Book for the Apple Computer. 3d ed. Chicago: WIDE Video Publications, 1983.

Curtin, D. P.; Alves, J. R.; and Briggs, A. K. *Controlling Financial Performance for Higher Profits—An Apple Business Users Guide*. Somerville, MA: Curtin and London, 1983.

Curtin, D. P.; Alves, J. R.; and Briggs, A. K. *Controlling Financial Performance for Higher Profits—An IBM PC Business Users Guide*. Somerville, MA: Curtin and London, 1983.

Data Sources. Cherry Hill, NJ: Data Sources, n.d.

DataPro Directory of Microcomputer Software. 2d vol. Delran, NJ: DataPro Research Corporation, 1982.

"*Directory of Personal Computer Software.*" *Creative Computing 1983 Software Buyer's Guide.* Morristown, NJ: Creative Computing, 1983.

80 Micro Review Guide. Petersborough, NH: 80 Micros Books/Wayne Green, 1983.

The Guide to Personal Computer Offerings from IBM. Atlanta, GA: International Business Machines Corporation, 1982.

IBM Expansion and Software Guide. Indianapolis, IN: Que Corporation, 1982.

IBM PC Expansion and Software Guide. 2d ed. Indianapolis, IN: Que Corporation, 1983.

IBM PC Software 1983. Los Angeles, CA: Addison-Wesley Publishing, 1983.

ICP Software Directory: Business Applications for Microcomputers. Bowie, MD: Robert J. Brady Company and Prentice-Hall, 1983.

Information Industry Market Place: An International Directory of Information Products and Services. New York, NY: Bowker, published annually.

The International Microcomputer Software Directory. Fort Collins, CO: Imprint Editions, n.d. (Available on-line through DIALOG.)

Krugiński, David. *Database Management Systems: A Guide to Microcomputer Software.* Berkeley, CA: Osborne/McGraw-Hill, 1983.

MECC Educational Computing Catalog. St. Paul, MN: Minnesota Educational Computing Corporation, 1983.

"*Microcomputer Software/Materials.*" *Gregg/McGraw-Hill Catalog.* New York: Gregg/McGraw-Hill, 1983.

Micro LearningWare Catalog. Mankato, MN: Micro LearningWare, 1983.

Naiman, Arthur. *Word Processing Buyer's Guide.* Petersborough, NH: BYTE/McGraw-Hill, 1983.

Radio Shack TRS-80 Applications Software Sourcebook. Fort Worth, TX: Radio Shack Division, Tandy Corporation; revised every six months.

Small Systems Software and Services Sourcebook. Glenview, IL: Information Sources, 1982.

TRS-80 1983 Catalog. Fort Worth, TX: Radio Shack Division-Tandy Corporation, 1983.

VMI Apple Computer Education Software Directory. Gurnee, CA: Visual Materials, n.d.

TO ORDER ADDITIONAL COPIES OF THIS PUBLICATION, USE —	ORDER NUMBER	PRICE
• <i>Microcomputers in Small Business Management</i>	LT 64	\$ 6.50
TO ORDER RELATED PUBLICATIONS, REFER TO —		
• <i>Courseware Evaluation: Form & Guide for Vocational and Technical Education</i>	SN 44	\$ 2.50
• <i>Word Processing: A Guide to Program Planning</i>	LT 65	\$ 4.95
• <i>Microcomputers in Voc Ed: A Decision Guide</i>	RD 239A	\$ 8.75
• <i>An Administrator's Guide to Microcomputer Resources</i>	RD 239B	\$ 9.50
• <i>PACE (Revised) — A Program for Acquiring Competence in Entrepreneurship</i>	RD 240	\$120.00/ set
• <i>Entrepreneurship in Voc Ed: A Guide for Program Planning</i>	LT 62	\$ 6.50

ORDERING INSTRUCTIONS

To order additional copies, please use order number and title. Orders of \$10.00 or less should be prepaid. Make remittance payable to the National Center for Research in Vocational Education. Mail order to:

The National Center for Research
in Vocational Education
National Center Publications, Box F
1960 Kenny Road
Columbus, Ohio 43210

Prices listed are in effect at the time of publication of this book. All prices include postage and handling. Prices are subject to change without notice.

Quantity Discounts

Orders of five (5) or more items, as listed by publication number and title, with a total dollar value for the order of:

\$ 50 to \$100, the discount is 5%
\$101 to \$200, the discount is 10%
\$201 to \$300, the discount is 15%
\$301 to \$400, the discount is 20%
\$401 and above, the discount is 25%

International Orders

All orders, in any amount, from outside the United States and its possessions are to be paid in U.S. currency. Additional postage and handling charges may be added for foreign shipments if necessary.